AMERICAN BEE JOURNAL

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SEPTEMBER 1927

W. HERROD-HEMPSALL, *of the British Ministry,* and FAMILY.

BEEKEEPING AS A LIFE WORK— J. E. CRANE

DOUBLE HIVES FOR QUEEN REARING— FRANK C. PELLETT

COLONY DEVELOPMENT IN NORTH DAKOTA— C. L. FARRAR

INSULATING THE BEEHIVE— WILSON AND MARVIN

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Holding—with glass	Price 10	Price 50
24—4¼x1⅞ sections	$4.30	$21.85
24 – any style plain sec;	4.00	19.75
Double deck, 4¼x1⅞	5.10	22.50

Glass Jars

Description	Per case	Weight
1-lb. jars	$1.25	18 lbs.
8 oz. jars	1.00	15 lbs.
5-oz. jars	1.00	12 lbs.

Friction Top Pails

	Price per 10	Price per 100
2½ lb. cans	$ .60	$ 4-60
5-lb. pails	1.00	6.90
10-lb. pails	1.40	10.25

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Mailing Weight per 100, 6 lbs.		With name and address
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Foundation

	1 to 4 lbs.	5 to 49 lbs.	50 to 100 lbs.
"Hercules" Medium Brood	$ .70 per lb.	$ .68 per lb.	$ .65 per lb.
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Sections

No 1 grade			No 2 grade	
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1.05	4.85	All plain sections	1.00	4.60

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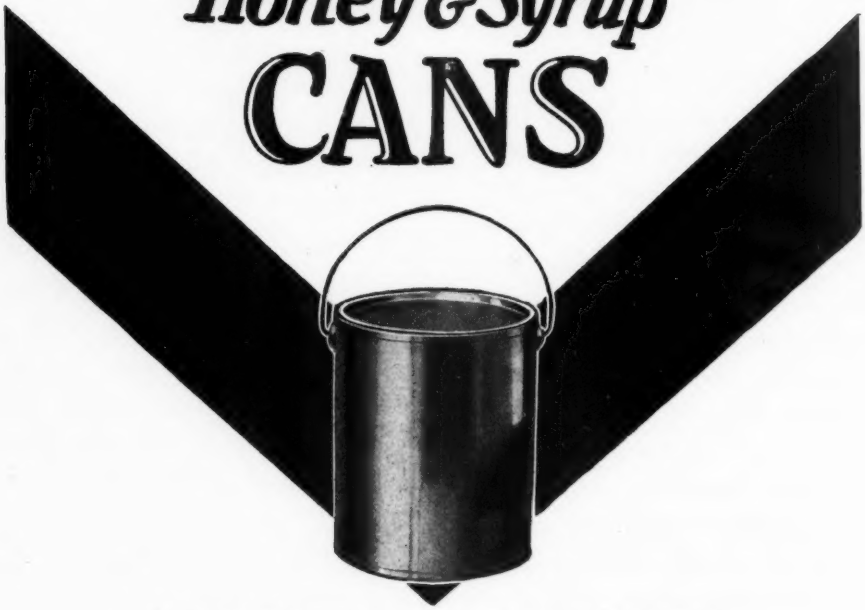

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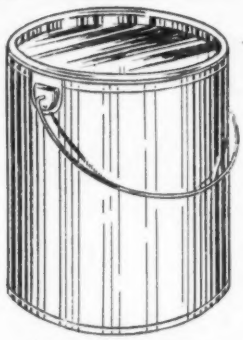

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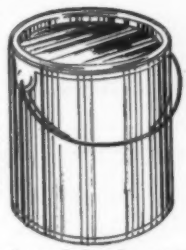

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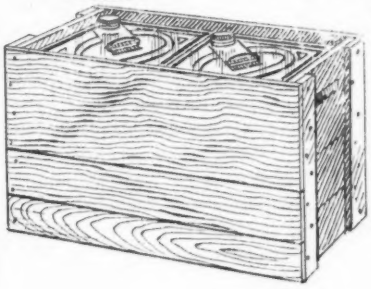
2½ lb. cans, 100 in dust proof fiber cartons	$4.20 per carton
5 lb. pails, 50 in dust proof fiber cartons	3.30 per carton
10 lb. pails, 50 in dust proof fiber cartons	4.90 per carton

Shipments from Higginsville, Missouri, Omaha, Nebraska, St. Louis, Missouri, or Chicago, Illinois

Sixty Pound or Five Gallon Cans



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1 to 9 cases inclusive	$1.15 per case of two cans
10 to 49 cases inclusive	1.10 per case of two cans
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"Diamond I" Glass Honey Jars

8 oz. jars, 24 in reshipping carton	$1.00 per case	$ 5.80 per gross
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1 to 9 inclusive, 24 sections, 2-inch glass	$ .35 each
10 to 49 inclusive, 24 sections, 2-inch glass	.32 each
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All necessary corrugated paper, drip paper and nails included.
Shipments from Higginsville, Missouri

Write for our new Free Container Price List and Bee Supply Catalog

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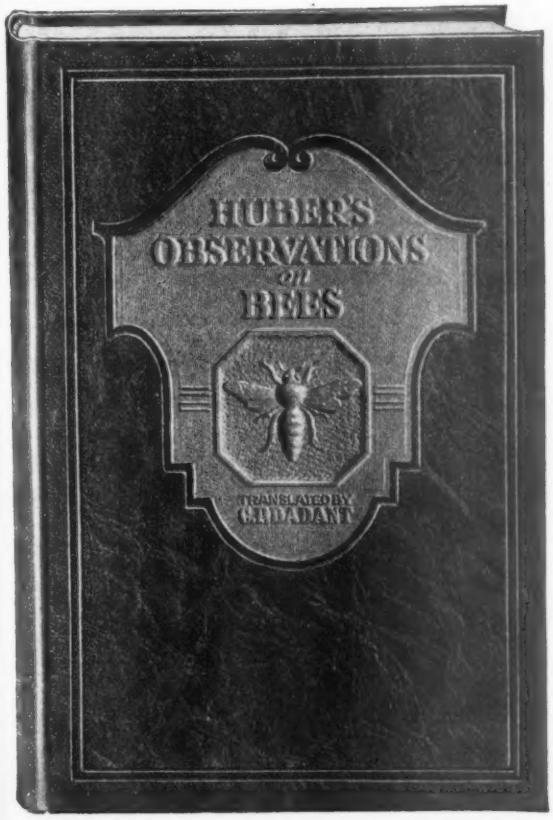

An Open Door to the Fascinating Mystery of the Hive

"New Observations on Bees"

By Francis Huber

Translated from the original French by C. P. Dadant

Actual observations on bee life in understandable language

How the queen mates, how bees live, egg laying, brood rearing, how wax is made, how comb is built, the senses of bees.

Huber's experiments on bees have never been equalled and he established many of the facts of bee life for all time, giving us a most interesting and true record of all he saw. Every student or close observer of bees starts with Huber.

The present book is a translation of both of Huber's "Nouvelles Observations," in French, dated 1792 and 1814. Previous English versions were not only very much abridged and incomplete but contained absurd errors.

To C. P. Dadant, French is a mother tongue and his English is a delight in its style and simplicity. Also his translation is exact and complete.

Beautifully bound---230 pages---original illustrations

PRICE $3.00 POSTPAID

American Bee Journal, Hamilton, Ill.

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Our September Cover

This month we present the likeness of W. Herrod-Hempsall and family as they appeared at the time of their visit to Hamilton. Mr. Herrod-Hempsall is apiary advisor to the British Ministry of Agriculture and Fisheries. His trip was for the purpose of learning American methods of honey production.

We hope that he saw America in a favorable light and went home feeling that his visit was worth while.

Jay Smith's QUEENS

Successful beekeepers are finding that late requeening is good beekeeping. Many colonies with old or poor queens come out queenless in the spring, while others do not build up for the harvest.

If you have any colonies with poor queens, it will pay you liberally to requeen with our queens **now**, and you will be delighted to see how strong they will come out in the spring with vigorous, gentle bees.

Our book "About Bees" is free

Prices: 1 to 4 inclusive, $1.50 each; 5 to 9 inclusive, $1.45 each; 10 to 24 inclusive, $1.40 each; 25 to 49 inclusive, $1.35 each; 50 or more, $1.30 each. Breeding queens, service guaranteed for 1927-28, $10.00 each.

JAY SMITH

Route Three VINCENNES, IND.

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Carload or less quantities, send samples and advise quantity you have and price.

COMB

Carload or crate lots. Must be sections sizes 4¼x4¼x1⅞. Mention grade and quantity.

We also need Buckwheat Extracted, 160 pound kegs preferred

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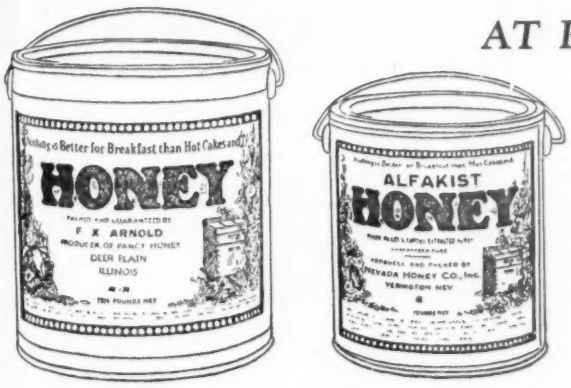
Ozone Park, New York

HONEY CONTAINERS *for Quick Delivery*

AT PRICES THAT WILL SURPRISE YOU



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Clean, tight pails, that put your honey in the market right. We buy in carload from one of the largest makers of pails in the country. So you get them at a price that will save you money.

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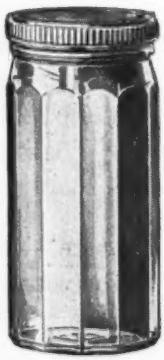
Of special sawed wood, not veneer. Heavy ends; top and bottom shipped-lapped; two-inch front glass; nails and paper included. Lowest price we have offered in years. Corrugated shipping cases—genuine Crane style, a great saving



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Clear, White, Fluted Glass for Golden, Mellow Honey

These jars display honey beautifully. The appetizing quality of the honey stands out, helping to make it a fast moving item on the dealers' shelves. Furnished in corrugated reshipping cases complete with lids and liners

Lithographed Cans and Pails

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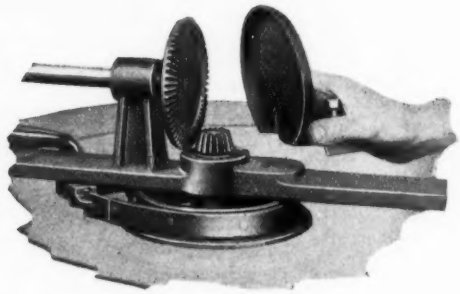

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Gears that will not strip—top bar cast in one piece—no clutch, machine always in gear, yet coasts instantly—horizontal drive shaft of ¾ inch steel—a reel that stands up under any honey load—leather-lined brake that works on a 6 inch drum—there you have the Lewis hand power extractor, "Standard of the Beekeeping World."

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AMERICAN BEE JOURNAL

Vol. LXVII – No. 9 Hamilton, Illinois, September, 1927 Monthly, $1.50 a Year

Beekeeping as a Life Work

Opportunities in Honey Production as a Business for a Young Man

By J. E. Crane

I HAVE been asked whether I "think beekeeping offers sufficient inducements to make it worth while for a young man of ambition and good education."

I feel as though it was taking a good deal of responsibility upon myself to give advice in this matter, and my advice will not be very definite or exact, I fear.

If a young man has the ambition and ability to make himself of the greatest use to his fellow men, let him secure a liberal education and work in the many fields that will be open to him, and leave to others the pleasant task of gathering the nectar that is going to waste.

If one desires to accumulate great wealth, I would not advise beekeeping. We do not hear of many millionaire beekeepers. Let him devote his days to adding dollar to dollar until he has a great pile.

If one is looking for a life of ease and idleness, better not try to find it in keeping bees. Too many have tried it and failed.

But if one prizes health and a long life, if you love the great out-of-doors, the green fields and leafy trees, the song of birds and joyful hum of bees; if you would study the grand panorama of the changing seasons, with its infinite variety of vegetable and animate life, its flowers and fruitage; if you would have a home all your own in some quiet nook where you may be your own master and live your own life without anyone to tell you what you shall do or not do, beekeeping certainly offers some very attractive inducements.

First as to capital. Most kinds of business require capital. One hundred acres of fairly good farm land with stock and tools would cost several thousand dollars, while a young man may buy material for one hundred hives and put them together himself and from a few colonies increase his stock to one hundred in a short time. When I lived on a farm I used to think that for net profit one hive was nearly or quite equal to an acre of land. This, of course, would vary in different sections.

There is a difference between getting money and making it. A farmer may swap horses with his neighbor and gain $25 by the transaction, but the country is no better off for this kind of business. When a beekeeper secures a thousand dollars' worth of honey that would otherwise have gone to waste he may be said to have made it and the world is that much better off. This may not be much of an inducement to keep bees, but it is a satisfaction to feel that we are making what we get.

I suppose the strongest inducement to keep bees is the money that can be made with them. Let us see. For many years I cared for five hundred colonies, working five days in a week with a boy or a man to assist me. Had I worked six days, I could have cared for six hundred. These were run for comb honey and averaged not far from thirty-five pounds per hive. This would give 17,500 pounds of honey, which at 20 cents per pound would be $3,500. If we allow $1,000 for help and supplies, it would leave $2,500. These figures are not exact, but will answer for making an estimate. They will also vary greatly for different sections, and seasons.

"Would you run for comb or extracted honey?" I hardly know what to say. Most of my work has been producing comb honey, as there was usually a ready market for it, but of late years we are producing more and more extracted honey, as there has been a greater demand for it. There will be a still greater demand for it when the mass of people come to appreciate what Dr. R. J. Goss says in the June number of American Bee Journal, page 297.

There are some very decided advantages in running for extracted honey. There is less swarming, or perhaps I should say swarming is more easily controlled, and a larger number of colonies can be cared for with the same amount of labor. We can also save a large annual expense for sections, foundation and shipping cases. If we can get forty pounds of comb honey to the hive, we should get sixty pounds of extracted. If the wholesale price of comb is 20 cents a pound and extracted 12 cents, it should stand about this way:

40 lbs. comb at 20c_____$8.00
60 lbs. extracted at 12c__ 7.20

If we take out 80 cents for sections and foundation, there will be little difference.

"What kind of equipment, size of hive, single or double walls?" If I were located where bees could be wintered safely in a cellar or special repository, I should prefer a single-wall hive, as they are lighter and more easily handled, and indoor wintering is a great saving of honey. If there is no good chance for wintering indoors, a double-walled hive is almost a necessity in our northern climate. I began using double-walled hives in 1870 and have used them very largely ever since. A good-sized colony with good honey or sugar syrup and well packed is almost sure to winter fairly well.

A large hive is to be preferred for securing extracted honey, while a smaller one, or one that can readily be reduced in size is to be preferred for section honey, so the bees can be forced into sections at once when a good flow of white honey comes.

"Is a location where big production is possible, or nearness to good

markets the more important?" I should say where large production is possible, unless you desire to sell your honey in a retail way, when nearness to consumers is a necessity.

"Would you locate wherever you happened to live, so as to have the advantage of remaining near friends and relatives, or go into some of the districts where large crops are the rule?" I should certainly want to locate where at least fair crops of white honey could be secured.

Something over fifty years ago I went to California, in part to look up the bee business. I learned that it was the custom of large beekeepers to leave their homes and go to the mountains or foothills to care for their bees. "Batching it," I believe, was what they called it. I thought I preferred to keep bees here in the East and be satisfied with smaller crops and live in my own home.

Only last week, Professor Farrar, of Amherst College, called to see me, who last summer spent considerable time in Dakota, where very large crops of honey are said to be secured. He did not represent it as the beekeeper's paradise that I had imagined.

There are various ways a beekeeper may add to his income. He may sell his neighbor beekeepers supplies or queens. He may sell hives of bees, or retail his honey when he has the leisure. I know one beekeeper who last year took his section honey in his car and soon sold his crop at good prices, saving shipping cases and freight. It is surprising how large a retail and jobbing trade can be worked up in a few years. After selling our own crop last year we had to buy many tons of extracted honey to meet the demand.

I see I have written a good deal and given but little advice. I have preferred to give facts as I see them, and let the young man judge for himself as to whether it is worth while to engage in beekeeping. After all, every person who expects to succeed in business must learn to think and judge for himself.

There is a little fallacy about the profits of keeping bees on a large scale that perhaps I should mention. A young person is apt to reason in this way: If one colony will give a profit of $5.00, one hundred colonies will give a profit of $500.00, and a thousand colonies will give a profit of $5,000.00. It does not usually work out in just this way. As your colonies increase in number, the net profit per colony is likely to decrease and it will require great industry and economy to succeed. The high price of labor has much to do with this.

In closing, I will say as a good old beekeeping friend said to me near the close of his life: "I think if I were to live my life over again I should keep bees."

Hue or Luminosity?

By John H. Lovell

The conclusion that bees are not color blind to red, based on observations of their behavior in the presence of a red electric lamp, described in the American Bee Journal, April, 1927, does not seem to be justified. The three constants of color are tint, luminosity, and hue. In the experiment described it is very probable that the bees reacted to luminosity rather than to red hue.

According to the experiments of K. von Frisch, which have been more or less **unsatisfactorily** described several times in the bee journals, the vision of bees is dichromatic. They perceive yellow and blue, but their eyes are insensitive to red and its complementary color, a certain blue-green. No amount of training could teach them to distinguish between red and black.

Mrs. Ladd-Franklin, of Columbia University, accepts the conclusions of von Frisch that the spectrum of the bee is yellow at one end and blue at the other (but in place of what should be the yellow-blue, appears white). The primitive eye, says Mrs. Ladd-Franklin, perceived only white; later in the development of the color sense the retina became sensitive to yellow and blue, and finally to red and green.

Plateau and Hess have maintained, on the other hand, that bees are totally color blind. They distinguish between the spectrum colors, according to Plateau, by means of their luminosities, not by their different hues.

A bee trained to visit a strip of blue paper will exhibit remarkable fidelity to this color, when given the choice of many other colors. I trained a bee to visit a strip of red paper and then gave it an opportunity to choose between red and black. It visited the two colors (in the Ladd-Franklin theory black and white are regarded as colors) almost indiscriminately—possibly showing a slight preference for the red. This can easily be explained by the greater luminosity of the red. The sensation of black is due to non-stimulation of the cortex. I am not wholly satisfied with this experiment, and think it possible that with a longer training a bee might show greater fidelity to the red.

It can easily be shown that bees in the hive react in a nearly similar manner to black and red, though the reaction to red seems less intensive. Their response to red and black is quite different from that to yellow and blue.

The larger part of the experimental evidence, it must be admitted, tends to show that bees cannot see red. Notwithstanding this evidence, I am inclined to believe, for reasons which I will not enter into here, that they do to some extent perceive red and green, though probably less clearly than they do yellow and blue. The color sense of the bee seems to be intermediate betwen dichromatic and tetrachromatic vision.

No one questions that bees can distinguish between different degrees of luminosity, but it is important to determine how small the differences may be between which they will distinguish. The luminosity of orange and green are very similar. Will a bee distinguish between them? If not, and it yet distinguishes between the two colors, then it would appear to be the hues and not the luminosities which guide it.

There is an opportunity for considerable experimental work on the comparative effects of luminosity and hue on the vision of the honeybee, which should yield results of value.

Maine.

Poisoned Bees From Spraying

The following letter has been received from a reliable beekeeper in Calhoun county, Illinois. It shows the suffering from high water and also shows the troubles caused by ignorant orchard growers. The fact that bees are poisoned carelessly, by premature spraying, cannot be charged to anything but ignorance and viciousness, for the man who thus poisons bees makes it more difficult for his fruit to be fertilized. It is true that some people are still ignorant of the fact that fruit blossoms need the agency of insects, especially bees. But they are becoming less and less numerous all the time, as the leaders and instructors in fruit production keep teaching the facts of fertilization by bees.—Editor.

Well, Friend Dadant, I am writing to let you know how we are coming on with those bees in the backwater of the Mississippi River. To my surprise, there was not a single colony perished from loss of bees, and this meant two movings in daytime when the bees were at work. You see, we had them in a place where we could not get out after dark, and the two movings were caused by the water being about ready to cover the ground where we placed them the first time, preparatory to a permanent move. We so far discovered three colonies queenless, but in such confusion and mixing of bees this is

a very small loss. Of course, some of the colonies were rather weak in bees. We still have our bee house and eighteen colonies in this backwater place. (Note the above bees were moved without closing or screening.)

I will now tell you what has happened in our home yard of bees, comprising 130 colonies. This yard was in good shape before apple bloom—in fact it is rare that they were in as good shape so early in the season. When trees commenced blooming, we had two good days and the bees worked on this very freely, but a couple of days later a number of orchardists started spraying while the trees were yet white with bloom, and shortly the bees commenced to die, but only seven or eight colonies were afflicted; but next day more were suffering from this and it has continued and is still in progress at present, but not so heavy as a week ago. Many of the colonies that had eight frames of brood have about one to two quarts of bees remaining, and these colonies are still suffering losses.

We have always understood that killing of bees through spray poison was caused by the honey (or nectar) being poisoned, but we think this is a serious mistake, at least in this case, as we have been observing for the last ten or twelve days. It seems at first young or nurse bees crawl from the hives. These upon examination, we find, have their chyle sac, or stomach, filled with pollen, etc. Later on, when the regular nurse bees are all gone, the older bees take their place as nurses and they likewise become afflicted. The reason, I think, is chiefly the pollen, and not so much the nectar, that is poisoned; so the drones and very young bees do not seem afflicted to any extent, and in colonies examined we note that the brood seems healthy and also find queens that appear all right and thrifty looking. The reason we think the trouble is caused from pollen is that the pollen is taken into the stomach for transformation and before this process is completed the effects of the poison begin to show and the bee does not get a chance to transfer it to the queen and larvæ.

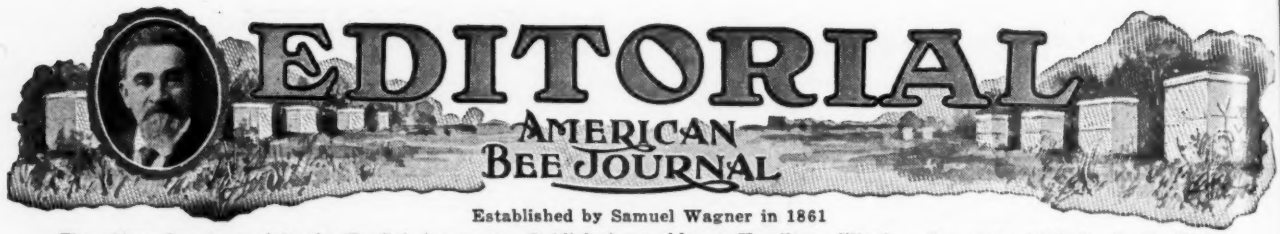
You may think this spraying in bloom is done through ignorance, but that is far from the truth, as most of these offenders are fairly well informed and the entire thing could be charged to envy, greed, avarice, viciousness. If this cannot be stopped, we and all other beekeepers in this neighborhood will have to abandon this pursuit.

More than one hundred colonies are afflicted as we write this.

A GOOD HIVE LIFTER

W. A. Jenkins, of Rockport, Missouri, is an ingenious fellow who devises many short cuts to lighten his labor. The pictures show one of his devices. This hive lifter is novel in that it is made for the use of either one man or two men. It slips over the hive as shown in the picture. In the center of each end there is a hand hold for use as a one-man lifter. At each corner there is another handle to serve when two men use it. The pictures give a good idea of the device and the manner in which it is used.

The men shown are W. A. Jenkins and Harry A. Pease, of Shenandoah, Iowa.



Established by Samuel Wagner in 1861

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Robbing at the End of the Crop

It may seem idle to warn practical beekeepers against the evils of robbing. But even among our best workers there is often too much neglect of the possibilities of robbing, when the crop comes to an end.

I have thought it might be well to recount an experience of mine, about 1875, when I had had only six or seven years of experience and thought myself quite well posted.

We had an apiary at the home of an old gardener, the same man with whom I had a very interesting experience in keeping bees inside of a hothouse. We had some forty-five hives there and had a splendid crop on the hives. I went there one day and found one hive so crowded with honey that I thought best to extract it, for it was almost all sealed. I did, and as there appeared to be honey still coming in, I returned the supers, three or four of them, at once. This was in the middle of the day. The colony was the strongest in the apiary.

Immediately afterwards, the old gentleman proposed to me to walk to the postoffice, about two miles distant. We did. We were gone about two hours. When we came back at about 3 o'clock of the afternoon, we found that large colony being robbed, by the neighboring colonies. Nothing that we could do was of any avail. Somehow, the queen was killed, the colony dwindled and became quite worthless. This gave me a lesson that I never forgot, and I always urge our boys to make sure that the crop is on fully, before they return any supers to the hives during the day's work. When the supers are returned just before sunset, there is a little excitement, but it is soon over and by the next morning all odor of running honey has disappeared and the apiary is quiet.

Let the beginners beware of inducing robbing.

Diseases of Adult Bees

We have often expressed the opinion that some of the diseases of the adult bees, constipation, paralysis, convulsions, vertigo, May disease, were not yet sufficiently diagnosed; that the Nosema apis, the Acarapis woodi, although explaining a part of the troubles, did not explain most of the diseases that we find in our bees, in the United States, in spring.

In the "Rucher Belge," Dr. Lardinois is writing a series of articles on "Mal-de-mai," which are giving another clue and probably the most important clue to the spring diseases of the adult bee. He describes a germ, which he calls "saccharomycose," as causing the fermentation within the intestines of the bee of the food consumed. This fermentation is alcoholic and similar to that which takes place in the making of mead or metheglin. It is out of the question to write at length on this matter ourselves. We have written to Dr. Lardinois and have asked him to write for us a couple articles on this question, with original engravings of his microscopic studies of the subject.

Feeding For Winter

All well informed beekeepers agree that the time to prepare the bees for winter is during the last days of the honey crop. The bees must rear plenty of brood so as to be strong and populous, and they must have ample stores. Beekeepers used to consider twenty-five to thirty pounds sufficient to carry the colony through the winter. But it is acknowledged that it often requires almost a similar quantity to permit them to rear sufficient brood in spring to become strong at the opening of the crop. Much depends upon the climatic conditions. Much depends also upon whether the early blossoms, such as fruit bloom, yield much nectar. It is best to err on the safe side and have somewhere near forty pounds of honey in the brood chamber, or in an upper story in the case of small hives such as the eight-frame Langstroth. They now call this upper story a "food chamber."

Sugar syrup is hardly suitable for food at the time of heavy breeding. But it has been ascertained that pure sugar syrup is very good for wintering, as it furnishes food with the least quantity of waste and does not load their intestines unduly. So, any shortage in the amount of stores should be made up by feeding, and this should not be done later than October 1, in all sections where the crop ends in September. The beekeeper should bear this in mind when examining his bees for the last time.

With our large hives it happens quite often that the bees will not crowd their hives sufficiently with stores, and in such cases it is well to remove the supers early so as to compel them to store some of their surplus in the brood chamber. Otherwise a greater amount of feeding will be required.

What Is Needed In Queen Rearing

Jay Smith, who attended the Hamilton meeting, gave us an address on this subject. In addition to some good stock, both in queens and drones, the most necessary requirement is to keep the bees well fed, so that they may produce royal jelly in abundance. Mr. Smith objects to the assertion that the gland that produces the royal jelly in worker bees becomes atrophied when they get old. As a proof of this he reminds us that the bees, when they rear brood in early spring, feed it heavily with royal jelly, although none of the bees are less than three months old at that time.

Yet it is a fact that this gland, located in the head of the worker bee, is reported as atrophied in old workers. It would be interesting to ascertain how old a worker must be before it becomes unable to feed larvæ. At any rate it is better to have some young bees in the hives that are used to rear queens.

Jay Smith is an earnest and interesting speaker and it is easy to see that he knows his subject thoroughly.

Large Hives

Since it has been pretty generally acknowledged that the ordinary or standard Langstroth hives of eight and ten frames are too small for brood chambers, both for the breeding of bees in the spring and for the supply of honey for winter and spring use, many people have used either two stories or a story-and-a-half. The upper story, whether full depth or half depth, is called a "food chamber." Lately a number of beekeepers have tried to make brood chambers of a story and a half in depth, with frames nearly fourteen inches deep, using the common brood chamber and a super fastened on top of it for a brood chamber. This would be a good makeshift, enabling the beekeeper to use his rejected equipment for large brood chambers. A number of persons have asked us what we thought of this scheme.

The idea would be good if the frames thus built did not require such a great depth of foundation. The wider the foundation is, the greater the danger that it will not hold well without warping and the greater the difficulty of making it of good quality. We believe that those who have entire outfits of standard Langstroth hives had best use a story-and-a-half in two pieces. With a ten-frame hive it makes a little more room than a colony needs, since the equivalent of thirteen frames is figured as ample. But there is an advantage in being able to reduce the space to a single story, which would be ample for many under-average colonies for wintering. As to the two full stories, one of them for food chamber, we believe it is altogether too much, except in extraordinary seasons.

European Beekeeping

To anyone who has watched beekeeping in Great Britain, Belgium, Switzerland, France, Italy and the central European countries, for sixty years, the conditions appear quite different. Germany and the German-speaking nations are the only ones where the change is slow, because they were ahead, under the direction of Dzierzon and Berlepsch, some sixty years ago, and have changed their methods but little. But the Latin countries, France especially, have modified their beekeeping altogether, and their magazines are showing the wonderful progress that is caused by the slow dropping of the straw skep and the adoption of the movable frames. The lover of "fixed hives," Hamet, the editor of the oldest magazine, the man who called the honey extractor "a useless toy," if he could come to life again (he died in 1890), would be very much disappointed to see his own magazine, founded by him, accepting new ideas with very little hesitancy.

We cannot say that the preference for the old-time straw skep has entirely disappeared. Once in a while we read an article by a lover of old days who thinks beekeeping is going to the dogs, but such writers are getting rare and very lonesome.

Unfortunate Publicity

An example of the damage that news reports can do to the honey business comes from Michigan. Newspapers of that state have recently carried a big story about the campaign for bee disease eradication. Headlines, "Rid Bees of Typhoid Germs," greet the reader. The story states that an infected hive is destroyed by the "fever" in from two weeks to two years. It further states that the germ can live in the ground for thirty years and is not affected by fifteen minutes of boiling.

A story about typhoid fever in oysters, which went the rounds of the press a few years ago, nearly destroyed the market for oysters for several months. There is no estimating the damage this story so generally printed in Michigan papers will do to the honey market.

A clipping was sent to this office with an enquiry as to whether it might be true. The writer stated that if the story is true he does not want any more honey used in his family.

The publication of a story that 35 per cent of Michigan's bees are producing honey containing typhoid fever germs so virulent that they will live for fifteen years and are not affected by fifteen minutes boiling is likely to need a good deal of explanation.

Evaporating Honey

Referring to the disputed question of whether bees ripen honey by transferring it over and over from one cell to another, or whether it is ripened by forcing a strong current of air through the hive, night and day, after the nectar is harvested, we wish to call the attention of our readers and of the disputants on the fact that, always, after a day of heavy harvest, the bees of the colonies, which have been gathering nectar heavily, keep up a constant and very noisy roar all night long. In fact we always take it for granted that they are making honey fast when we hear this roar in the apiary. We think that they are helping the ripening of the honey.

John M. Davis

I believe that the dean of the queen breeders of America is John M. Davis. He has raised Italian queens for sale for fifty-one years. He is now 80 years old and still rearing queens, although in much less number than formerly and with the help of two clerks. His sales to the first of August this summer were 2200 queens.

Mr. Davis is a thorough Southerner. He does not drink any intoxicants, neither does he drink tea or coffee. He does not use tobacco in any shape. He has never slept in a Pullman car, although he has traveled as far as New York City, from his home in south central Tennessee. He is healthy and wiry.

The Honey Crop

Has the early crop ended with you? Or do you have enough sweet clover in the vicinity to run the two crops together? We have seen this a few times only, but it is then that the big yields come. Of course, we are talking only of the Middle States.

When the crop is ended, beware of robbing. As long as it lasts, we can extract honey and return the supers to the bees during the day time. But when the crop is at end, we need to lessen the entrances and return the emptied supers only in the evening.

The outlook is good for a fair crop. This will be fortunate, in the absence of a large California crop.

Bees as a Nuisance

It appears that the Town Board of Francesville, Indiana, has given a kindly notice to the beekeepers of that city of 800 inhabitants to move their bees out of the town before they are compelled to do it by an ordinance. The city fathers of Francesville are not yet aware of the fact that a man has just as much right to keep bees in a town as to keep a horse. If the bees of any one beekeeper commit a nuisance, he may be held for damages, but it is against decisions of the Supreme Court to try to compel the exclusion of any bees in anticipation of possible damage. Such an ordinance would be void.

Double Hives For Queen Rearing

By Frank C. Pellett

LARGE clusters of young bees with an abundance of fresh nectar provide ideal conditions for the rearing of young queens. Since the queen breeder must continue his operations throughout the season, he must do his best to maintain the conditions which nature provides only for a short season.

When spring opens, the colony is at a low ebb. Brood rearing is expanded as rapidly as the strength of the colony will permit and weather conditions favor. With the mid-season honeyflow the bees reach the peak of brood rearing. Instead of centering their energy on the storing of a maximum crop such as best suits the plans of the beekeepers, the bees may rear young queens, divide the colony by swarming and utilize these favorable conditions for establishing centers of activity.

In order that he may secure greater profit thereby, the beekeeper changes all this. He prevents the swarming of the bees by artificial manipulation, rears queens at his own pleasure and makes divisions at such times as will not interfere with the storing of the harvest.

The queen breeder must approximate the conditions under which the bees prepare for natural swarming, and to do this he must create somewhat artificial conditions. Many are the plans in use in the various queen yards to maintain the swarming impulse in the cell-building and cell-finishing colonies. Some breeders make swarm boxes with queenless bees and prepare a new one for each lot of cells.

The tendency, of late, seems to be toward queen rearing with queen-right colonies and thus keep as near as possible to the conditions under which the bees rear queens in preparation for swarming. It was formerly my practice to rear such queens, as were needed to requeen my apiaries, over an excluder above strong colonies, as described on page 75 of "Practical Queen Rearing."

On a recent visit to J. F. Diemer, of Liberty, Missouri, I was much impressed with the double hives which he uses, thus combining two colonies for this purpose, as shown in the pictures. His queen rearing hives are made with three compartments, with wire cloth between. The outside compartments each contain eight frames of the standard Langstroth size. The middle compartment holds three frames. This small compartment is used only in early spring for the purpose of starting operations while it is still cool. Situated between two strong clusters of bees, it is easy to maintain proper temperatures for cell building.

J. F. Diemer, of Liberty, Missouri, who devised the system

How the Hive Is Used

A strong colony of bees is maintained in each of the two outside compartments. With only wire cloth between, the bees can be mixed freely without danger of fighting. As will be seen from the illustrations, each compartment has a full-sized super. It is the design to keep both body and super filled as nearly as possible with brood throughout the queen rearing season. When a batch of cells is to be started, the queen from one compartment is moved to the super of the other, with an excluder between that and the body below, where the other queen is laying. This leaves one compartment without a queen while two are laying in the other. Cells are given in the usual manner. As soon as they are ready to be removed to the waiting nuclei, both queens are switched to the compartment from which the cells are taken. Cells are then placed on the opposite side.

The double hive complete for queen rearing

Thus the queens are moved back and forth to replenish the bees in first one side and then the other. With two queens laying, plenty of emerging bees are provided for nurses and it is seldom necessary to draw upon other colonies to keep up the cell-builders. With the cell-building operations separated from the compartments where queens are laying by means of wire cloth, there is no tearing down of cells. The great advantage of this system lies in the fact that, once cells are started, it is possible to continue queen rearing with the same colony for an indefinite period and thus avoid all the bother of the preparation of swarm boxes and the making of a new start for each lot of cells started.

Diemer has a number of these double hives in use, enough of them, in fact, to supply the normal output of cells for his entire business. It appeared to me that he was producing queens under more nearly normal hive conditions and with less labor than many other breeders whom it has been my pleasure to visit.

The Man and His Surroundings

Diemer is an interesting character. They call him the sage of Missouri beekeeping, and his apiary is headquarters for Missouri bee men. Visitors come for long distances and hang over his hives to visit, while he works. He is no longer a young man, for he has been for thirty-nine years a beekeeper. Like many another, he was slow in finding the thing which he could do best and which he most enjoyed doing. "Happy is the man who has found his proper place." One cannot know Diemer and have any doubt that he has found the right job.

He lives in the town of Liberty, but so cleverly has he hidden his apiary that hundreds of strangers pass by with never a hint that more than a hundred colonies of bees are located on one small lot. Black locust

Partial view of the Diemer queen rearing apiary which is right in the town of Liberty

trees are planted close together to form a dense hedge. This provides not only an effective screen, but compels the bees to rise high in going to and from the fields and they thus pass over the heads of folks in the streets. The place is planted with a great variety of shrubs and vines and flowers. There is plenty of shade for the beemaster as he goes about his work.

When he moved to his present location, a near neighbor was much disturbed for fear of stings, with bees so near. Diemer proposed to give a five-pound pail of honey for each sting. It was several years before the uneasy neighbor chanced to sit down upon a bee that had alighted on his chair. To date, this is the only pail of honey that has been necessary to keep peace in the neighborhood. The planting of the hedge has thus proved a very good investment.

Getting the Cutworms Without Injury to Bees

Your reference to "poisoning the bees," on page 359, July issue, with poisoned bait for cutworms, prompts me to offer a suggestion that has worked wonders with us in the elimination of cutworms, without killing the bees.

Until recent years our garden and grounds were infested with cutworms until it seemed as if half our plants were cut off by them, and gardening was a discouraging proposition. **Bluebirds** were the solution. Cutworms are the bluebirds' favorite food, and they seem to have no bad habits like some other birds, such as eating berries, cherries or fruit. One family of bluebirds will do more to rid the ground of cutworms than all the poisoned bait you can spread.

If the ground is badly infested, they will not get them all the first year, but they will be greatly reduced, and, as in our case, within two or three years cutworms will cease to be troublesome.

Our bluebirds are now raising their second brood, this summer, and when the young are being fed, cutworms and other worms are going down the baby birds' gullets as fast as the two parents can carry them. Up to now (July 6) we have not had one plant in the garden cut by cutworms.

If the "Farm and Garden" editor of the Chicago Tribune will advise his readers to send for farmers' bulletin No. 1456, "Homes for Birds," and follow the instructions for making and erecting bluebird houses, their cutworm troubles will vanish. More than this, the pleasure of watching the birds lugging the cutworms more than repays for the little work of furnishing the nesting box.

C. H. Pease, Conn.

Utah Cooperation

Two carloads of honey cans were received at Spanish Fork, Utah, recently, by the Utah County Honey Producers' Association. The shipment was received at Springville, but the cans have been distributed throughout Utah county.

In previous years each honey producer has purchased his own cans. This year the association bought them in carload lots at a considerable saving. While most of the cans are regulation five-gallon cans, a goodly number of one- and one-half-gallon cans have been purchased to take care of local and tourist trade.

J. F. Diemer, with double hive opened and frame of cells from top hive

Beekeeping In Bulgaria

By A. Dontschew

A Lecture Delivered During the Exposition in Vienna, September 8, 1925

FROM the beginning of historic times, beekeeping is known to have been common in the countries now occupied by the Bulgars. The people who have lived in this part of Europe, from the ancient Traco-Ellysians to the present day, have always possessed an inborn love for the peaceful pursuit of agriculture, of which beekeeping is an important branch, and for which the country is so well adapted. The Balkan peninsula, and especially Bulgaria, consists of an ideal assortment of high and low mountains and fertile plains. The mountains are covered with forests; the valleys and plains are watered by rivers and streams that tumble down from the eternal snow-covered mountain tops. The climate of the country varies from the semi-tropical, in protected valleys of the south to the rigid climate of the northern highlands. The geographic location of the country and the climatic conditions permit an abundant and varied honey-yielding vegetation. The orthodox church uses great quantities of pure beeswax in its services, and the population values honey as an important food product and for its medical qualities, which have encouraged the keeping of bees in Bulgaria.

Until fifty or sixty years ago all the bees were kept in bell-shaped skeps made from willow branches or similar materials. These baskets, or skeps, were finished with a coat of cow manure and were covered with straw. The bees thrived well in these skeps, but were much given to swarming, and, in order to obtain the honey, it was necessary to kill the bees. Large numbers of skeps are still in use, but they are continually decreasing.

The expansion and progress witnessed in central Europe and in America in the middle of the nineteenth century, caused by the epoch-making discoveries of Huber, Dzierzzon and Langstroth, failed to find its way to Bulgaria, partly because this country lacked connection with the cultural life of Europe and partly because of its spiritual and physical subjection to the Turks. After the country's deliverance in 1878, when the patriots who had been in exile returned, by using the knowledge gained all over Europe they became the means of progress along all economical and industrial lines, including beekeeping. New ideas and methods were now introduced among us and a slow struggle for progress and modernizing of beekeeping was started. We experimented to learn which type of hives was best adapted to Bulgarian conditions, until finally, in 1899, a congress of beekeepers adopted the American Dadant hive as standard. Of course, anybody may use any type of hive he pleases, but now the Dadant hive is used almost exclusively, and recent tests have again demonstrated its advantages under our conditions, and it has produced the best net results.

The following figures will show the progress in Bulgarian beekeeping: In 1879, 250,000 swarms were kept in skeps and 100 in hives, a total of 250,100 colonies. In 1924 there were 225,000 in skeps and 75,000 in hives, or a total of 300,000 colonies.

During the great war, Bulgarian beekeeping suffered great losses, but it has quickly revived. The average production of a skep is 15 pounds of honey, and 35 pounds from bees in hives. In 1924 Bulgaria exported 188,000 pounds of honey, and none was imported. The average production of wax of a skep is 1½ pounds, and of a hive 1¼ pounds, and the total production of wax is 412,500 pounds annually. In 1924 no wax was exported, but 375,000 pounds were imported, showing that our country is not producing enough wax to supply the needs of the beekeepers for foundation, and the tapers used by the church. The honey is largely exported to Turkey and Germany; we always have large supplies of honey for export. The Bulgarian honey is aromatic and well tasting. The color, taste and aroma are naturally dependent on the seasons and on the flowers from which it is obtained. The honey made in spring is usually light, running from water-clear to dark yellow; in summer and fall it is usually darker. Our honey as a rule granulates in October. As the source of light honey we have three species of linden, acacia (**A. pseudorobinia**), white clover and sainfoin. Dark honey is obtained from tobacco and from thyme (**T. serphyllum**). Our country is rich in honey plants.

In regard to races, the dark race predominates, although we also find bees with two, three or four yellow bands; this is caused by our country being located on the borders of the domains of the dark European and of the yellow southern races. Perhaps our bees are a cross of these. In northeastern Bulgaria, Caucasian queens have also been imported during the past ten or fifteen years, and Italian queens are also being imported. Experiments with Italian bees have proved that the second generation is better than the imported stock, undoubtedly caused by their being acclimated and used to our conditions. Ours is a very good strain of bees; they work busily whenever there is a honeyflow, and starve patiently when there is none, but they are not the equals of the Italians in honey production.

The only diseases known are the two forms of foulbrood; these are found in a few closely defined districts. The state is assisting the beekeepers' association in waging war on these diseases. The means used is destruction of all infected hives by fire or burial. The state allows the owner the full value of any bees or materials condemned.

Manufacturing of beekeeping tools and equipment is nearly altogether lacking; there are a few shops turning out smokers, extractors and foundation. Lately one association has started its own shop, which it hopes in time to expand into a factory. At present our requirements are imported from abroad. A few carpenters make hives to order.

Honey drinks and confections are not used by the trade; the honey is used in its natural form. A few beekeepers make honey wine and vinegar, Bulgaria being a wine country. The beekeeping literature consists mostly of translations of the works of German, French and English authors. The textbooks having the largest circulation are "Calendar for Beekeepers" by Bertrand and "Langstroth on the Honeybee," revised by Dadant. One paper for beekeepers is published, "Ptschella" (The Bee); this is also the official organ for the national beekeepers' association. It has been issued since 1900.

The agricultural department of the State University at Sofia has a chair in beekeeping, and there is also the beginning of a scientific institute for apiculture.—(Translated from "Tidsskrift for Biavl" by J. Skovbo.)

Northern Illinois

I have had no swarming going on here yet. I have always used 1½-inch space for brood frames and good depth frames. I like your ideas on that.

I want no shallow brood chambers and food chambers. Could give several reasons why.

I have now kept bees for seventy years and enjoy them very much. I keep only pure Italians, and have since 1859. Was 84 last December.

F. A. Snell,
Milledgeville, Ill.

Requeening in the Fall

By L. H. Cobb

JUST after the main honeyflow and before the fall flow is good time to requeen your colonies. The advantage of having a young, vigorous queen on the job is worth more than it costs to requeen. While it is not necessary to buy queens, there is some advantage over rearing them. You get new blood and the queen comes in time to commence laying soon after removing the old queen, while there will be about three weeks with no brood rearing if you rear your own. That may mean in loss of strength for the fall flow more than the cost of a good, young, untested queen.

Queens are lower in price after May each year and untested queens cheaper than tested, and there is hardly one chance in a hundred there would be any difference. The tested queen is kept in the hive long enough to make sure the bees hatched from her eggs are pure Italian, while the untested queen is kept only until she is laying. As reliable breeders take precautions against impure mating, there is little risk; the young beekeeper may well save the difference in price.

Complete directions for safely introducing them into the hives come with the queens, and they should be very carefully followed, for bees are rather averse to changing queens.

If you prefer to raise your own queens, you do not need to make each colony rear its own. If you have a colony that is especially productive, you can make that queen furnish eggs for all, but make another colony rear them. One of the best plans I ever tried was to prepare frames with a V-shaped foundation large enough to reach two-thirds the length of the frame and midway to the bottom. I placed one or more of these in the middle of the brood cluster in the favorite colony. When the bees had the comb built out enough, the queen filled it with eggs and it was ready for the colony that was to rear the queen. Select a strong, active colony and remove as many frames of brood as you have frames with eggs and put the egg frames in their places. Be sure the old queen is on one of the frames you have removed, and if you desire to start a new colony you can place the frames from both hives in a hive, together with the queen, or you can just keep her until your young queen gets settled and then kill the old queen and put the frames back into their hives to add their strength for the fall flow.

These soft, new combs will be just what the bees like for building queen-cells, and you are likely to have several built on one frame. Nine days after putting in the hive they will be sealed. Now you begin to requeen. Kill the old queen of a colony you wish to requeen. The next morning put one of the frames with queen-cells in the hive. One year I made every queen-cell produce a queen by cutting out a large chunk of the brood with the cell and fastening it into a frame from the hive I wished to requeen, instead of giving them all on the frame. I have requeened as many as four colonies from one frame of cells. If you leave them all on the frame, the first one to come out kills the others.

You continue to put frames with the V-shaped foundation in your favorite hive as you remove those with eggs and put into other hives to rear, until you have all you want. If you let each hive have a full frame of cells it will take longer than if you cut up to single queen-cells, but it is more easily and safely done and it is not pleasant to cut through live brood. I have had a good many queen cells destroyed by the bees where I fastened them in frames, but I have had many more succeed all right.

A young queen will lay later in the fall, filling the hive with young bees for wintering and giving a stronger start in the spring. Then the young queen will seldom take out a swarm the next spring.

Kansas.

The Yankee Abroad

About the first of last May, we received from our old friend Harry Lathrop, of Bridgeport, Wisconsin, a copy of his book with the above title. We meant to review it at once for the readers of the American Bee Journal. But a Scotch lady, visiting at our home, saw the book and expressed a desire to read it. So it got out of our sight and was read by a number of people before it returned. That is why our review of it is delayed.

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Beekeeping In Bulgaria

By A. Dontschew

A Lecture Delivered During the Exposition in Vienna, September 8, 1925

FROM the beginning of historic times, beekeeping is known to have been common in the countries now occupied by the Bulgars. The people who have lived in this part of Europe, from the ancient Traco-Ellysians to the present day, have always possessed an inborn love for the peaceful pursuit of agriculture, of which beekeeping is an important branch, and for which the country is so well adapted. The Balkan peninsula, and especially Bulgaria, consists of an ideal assortment of high and low mountains and fertile plains. The mountains are covered with forests; the valleys and plains are watered by rivers and streams that tumble down from the eternal snow-covered mountain tops. The climate of the country varies from the semi-tropical, in protected valleys of the south to the rigid climate of the northern highlands. The geographic location of the country and the climatic conditions permit an abundant and varied honey-yielding vegetation. The orthodox church uses great quantities of pure beeswax in its services, and the population values honey as an important food product and for its medical qualities, which have encouraged the keeping of bees in Bulgaria.

Until fifty or sixty years ago all the bees were kept in bell-shaped skeps made from willow branches or similar materials. These baskets, or skeps, were finished with a coat of cow manure and were covered with straw. The bees thrived well in these skeps, but were much given to swarming, and, in order to obtain the honey, it was necessary to kill the bees. Large numbers of skeps are still in use, but they are continually decreasing.

The expansion and progress witnessed in central Europe and in America in the middle of the nineteenth century, caused by the epoch-making discoveries of Huber, Dzierzon and Langstroth, failed to find its way to Bulgaria, partly because this country lacked connection with the cultural life of Europe and partly because of its spiritual and physical subjection to the Turks. After the country's deliverance in 1878, when the patriots who had been in exile returned, by using the knowledge gained all over Europe they became the means of progress along all economical and industrial lines, including beekeeping. New ideas and methods were now introduced among us and a slow struggle for progress and modernizing of beekeeping was started. We experimented to learn which type of hives was best adapted to Bulgarian conditions, until finally, in 1899, a congress of beekeepers adopted the American Dadant hive as standard. Of course, anybody may use any type of hive he pleases, but now the Dadant hive is used almost exclusively, and recent tests have again demonstrated its advantages under our conditions, and it has produced the best net results.

The following figures will show the progress in Bulgarian beekeeping: In 1879, 250,000 swarms were kept in skeps and 100 in hives, a total of 250,100 colonies. In 1924 there were 225,000 in skeps and 75,000 in hives, or a total of 300,000 colonies.

During the great war, Bulgarian beekeeping suffered great losses, but it has quickly revived. The average production of a skep is 15 pounds of honey, and 35 pounds from bees in hives. In 1924 Bulgaria exported 188,000 pounds of honey, and none was imported. The average production of wax of a skep is 1½ pounds, and of a hive 1¼ pounds, and the total production of wax is 412,500 pounds annually. In 1924 no wax was exported, but 375,000 pounds were imported, showing that our country is not producing enough wax to supply the needs of the beekeepers for foundation, and the tapers used by the church. The honey is largely exported to Turkey and Germany; we always have large supplies of honey for export. The Bulgarian honey is aromatic and well tasting. The color, taste and aroma are naturally dependent on the seasons and on the flowers from which it is obtained. The honey made in spring is usually light, running from water-clear to dark yellow; in summer and fall it is usually darker. Our honey as a rule granulates in October. As the source of light honey we have three species of linden, acacia (**A. pseudorobinia**), white clover and sainfoin. Dark honey is obtained from tobacco and from thyme (**T. serphyllum**). Our country is rich in honey plants.

In regard to races, the dark race predominates, although we also find bees with two, three or four yellow bands; this is caused by our country being located on the borders of the domains of the dark European and of the yellow southern races. Perhaps our bees are a cross of these. In northeastern Bulgaria, Caucasian queens have also been imported during the past ten or fifteen years, and Italian queens are also being imported. Experiments with Italian bees have proved that the second generation is better than the imported stock, undoubtedly caused by their being acclimated and used to our conditions. Ours is a very good strain of bees; they work busily whenever there is a honeyflow, and starve patiently when there is none, but they are not the equals of the Italians in honey production.

The only diseases known are the two forms of foulbrood; these are found in a few closely defined districts. The state is assisting the beekeepers' association in waging war on these diseases. The means used is destruction of all infected hives by fire or burial. The state allows the owner the full value of any bees or materials condemned.

Manufacturing of beekeeping tools and equipment is nearly altogether lacking; there are a few shops turning out smokers, extractors and foundation. Lately one association has started its own shop, which it hopes in time to expand into a factory. At present our requirements are imported from abroad. A few carpenters make hives to order.

Honey drinks and confections are not used by the trade; the honey is used in its natural form. A few beekeepers make honey wine and vinegar, Bulgaria being a wine country. The beekeeping literature consists mostly of translations of the works of German, French and English authors. The textbooks having the largest circulation are "Calendar for Beekeepers" by Bertrand and "Langstroth on the Honeybee," revised by Dadant. One paper for beekeepers is published, "Ptschella" (The Bee); this is also the official organ for the national beekeepers' association. It has been issued since 1900.

The agricultural department of the State University at Sofia has a chair in beekeeping, and there is also the beginning of a scientific institute for apiculture.—(Translated from "Tidsskrift for Biavl" by J. Skovbo.)

Northern Illinois

I have had no swarming going on here yet. I have always used 1½-inch space for brood frames and good depth frames. I like your ideas on that.

I want no shallow brood chambers and food chambers. Could give several reasons why.

I have now kept bees for seventy years and enjoy them very much. I keep only pure Italians, and have since 1859. Was 84 last December.

F. A. Snell,
Milledgeville, Ill.

Requeening in the Fall

By L. H. Cobb

JUST after the main honeyflow and before the fall flow is good time to requeen your colonies. The advantage of having a young, vigorous queen on the job is worth more than it costs to requeen. While it is not necessary to buy queens, there is some advantage over rearing them. You get new blood and the queen comes in time to commence laying soon after removing the old queen, while there will be about three weeks with no brood rearing if you rear your own. That may mean in loss of strength for the fall flow more than the cost of a good, young, untested queen.

Queens are lower in price after May each year and untested queens cheaper than tested, and there is hardly one chance in a hundred there would be any difference. The tested queen is kept in the hive long enough to make sure the bees hatched from her eggs are pure Italian, while the untested queen is kept only until she is laying. As reliable breeders take precautions against impure mating, there is little risk; the young beekeeper may well save the difference in price.

Complete directions for safely introducing them into the hives come with the queens, and they should be very carefully followed, for bees are rather averse to changing queens.

If you prefer to raise your own queens, you do not need to make each colony rear its own. If you have a colony that is especially productive, you can make that queen furnish eggs for all, but make another colony rear them. One of the best plans I ever tried was to prepare frames with a V-shaped foundation large enough to reach two-thirds the length of the frame and midway to the bottom. I placed one or more of these in the middle of the brood cluster in the favorite colony. When the bees had the comb built out enough, the queen filled it with eggs and it was ready for the colony that was to rear the queen. Select a strong, active colony and remove as many frames of brood as you have frames with eggs and put the egg frames in their places. Be sure the old queen is on one of the frames you have removed, and if you desire to start a new colony you can place the frames from both hives in a hive, together with the queen, or you can just keep her until your young queen gets settled and then kill the old queen and put the frames back into their hives to add their strength for the fall flow.

These soft, new combs will be just what the bees like for building queen-cells, and you are likely to have several built on one frame. Nine days after putting in the hive they will be sealed. Now you begin to requeen. Kill the old queen of a colony you wish to requeen. The next morning put one of the frames with queen-cells in the hive. One year I made every queen-cell produce a queen by cutting out a large chunk of the brood with the cell and fastening it into a frame from the hive I wished to requeen, instead of giving them all on the frame. I have requeened as many as four colonies from one frame of cells. If you leave them all on the frame, the first one to come out kills the others.

You continue to put frames with the V-shaped foundation in your favorite hive as you remove those with eggs and put into other hives to rear, until you have all you want. If you let each hive have a full frame of cells it will take longer than if you cut up to single queen-cells, but it is more easily and safely done and it is not pleasant to cut through live brood. I have had a good many queen cells destroyed by the bees where I fastened them in frames, but I have had many more succeed all right.

A young queen will lay later in the fall, filling the hive with young bees for wintering and giving a stronger start in the spring. Then the young queen will seldom take out a swarm the next spring.

Kansas.

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Colony Development in North Dakota

By C. L. Farrar

THE influence of "locality" has been recognized by apiculturists as an explanation for the variations in colony development and the size of the honey crop in different regions. It is generally accepted that bees are creatures of instinct rather than of reason, so under identical conditions the reactions are the same. The degree to which any reaction is carried will be influenced by the size of the colony, the age of the individuals making up the colony and the proportions of young workers to old workers and of drones to workers. Beekeepers have assumed that colony development is more rapid in northern regions because of the more intense honeyflows usually found there. It is the purpose of this paper to point out additional factors which may contribute to the "so-called" rapid development to a greater or lesser degree than that of honeyflow.

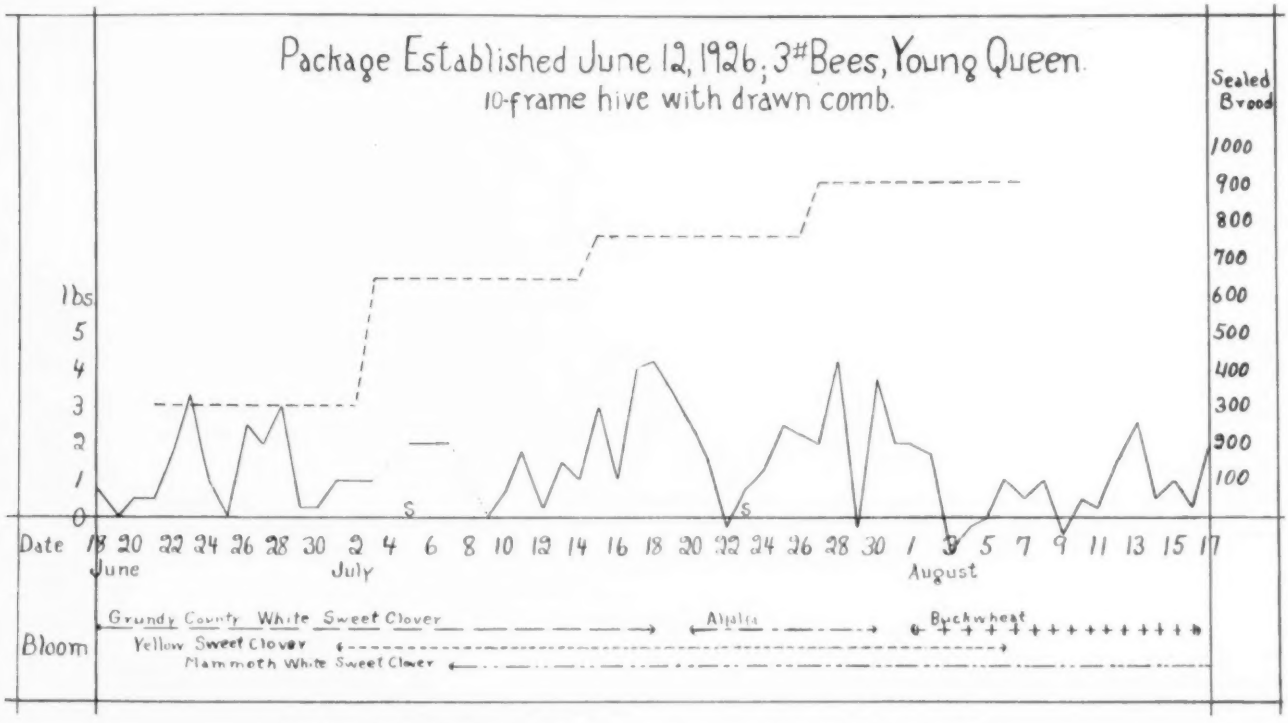
The rate of brood rearing is an issue which has been receiving a great deal of discussion during the past few years, due to the contemporary observations of Brunnich in Switzerland, Nolan in the U. S. Bureau of Apiculture, and Merrill in Kansas. It was my good fortune to assist Dr. Merrill in his collection of brood rearing data at Manhattan, Kansas. The results which each secured were very similar and in no case was the maximum rate of brood rearing over 2,000, in spite of the fact that these observations were carried on in widely separated localities. It is held by some that these results are below the true maximum of good queens heading colonies in regions of high honey production.

North Dakota has displayed some marvelous records in honey production during the last few years, and surely this is one place where studies on colony development should be made. It was my opportunity to assist Dr. M. C. Tanquary in his commercial apiaries located at Chaffee, North Dakota, last summer. There were about 850 colonies within reach of not less than 2,000 acres of honey plants, including two varieties of white sweet clover, yellow sweet clover, alfalfa, and buckwheat.

The Grundy County white sweet clover and the yellow came into bloom about June 10, and by the 18th the bees were gathering a surplus from them. It is highly probable that not less than two-thirds of the sweet clover grown in that section of the Red River Valley is of the Grundy county variety. There was about a hundred acres of yellow sweet clover in range of the bees, and this was pastured. The accompanying chart indicates the period of bloom of the different plants contributing to the honeyflow. The clipped Mammoth white sweet clover reached its optimum of bloom the latter part of July. The pastured clover offered some bloom at the same time, but gradually increased through August, as rains favored its growth and the stock did not crop it so close.

Buckwheat is used as a catch crop in North Dakota to fill in when some other crop has failed or blown out during late spring. Buckwheat is an asset to the beekeepers of the clover regions of New York and Pennsylvania because it comes after the white honeyflow is over. It enables them to increase their annual production without lowering the quality of their light honey. For the beekeeper who depends upon sweet clover for the light honey, the presence of buckwheat is objectionable. In this case, the two flows are in progress simultaneously and the resulting blend seldom sells for as good a price as pure sweet clover honey.

There is a possibility of having a continuous honeyflow from sweet clover in that locality from the middle of June until frost. If this was an actuality rather than a possibility, the locality could be called a true bee paradise. However, there are three factors which work against so favorable a condition. There is a decided tendency among the farmers to grow the Grundy County variety,



Graph to show the development of package bees under North Dakota conditions

which comes into bloom and is gone before the colonies are up to strength. From the beekeeper's standpoint, there should be more Mammoth grown, which is either clipped or pastured in order to provide a flow during August, when the colonies are usually strong. Second, inclement weather has often destroyed the possibilities for a good honeyflow. The occasional rain which stops the flow for a few days is not objectionable, as moisture is generally necessary in order that the period of nectar secretion will be prolonged. However, the cool, cloudy days which produce very little precipitation, such as were experienced during August, 1926, so shorten the period of nectar gathering each day that the crop suffers materially. The third obstacle is the difficulty in building up the colonies in time for the honeyflow. The winters in North Dakota are long and severe, so that it is necessary to provide every requirement for good wintering. There is usually a scarcity of snow, which makes the low temperatures experienced even more difficult to overcome. From the beekeeper's point of view, the spring season is far more treacherous, since raw winds are frequent and unobstructed in that flat country. During the past spring there was hardly a day during the six weeks prior to June 8 that the colonies could build up, because the winds swept the bees away as soon as they left the hive.

There are five factors of major importance which influence the rate of brood rearing in any colony. A vigorous queen of a prolific strain has been emphasized more than any of the others. Probably the least considered, yet of first importance, is that of available bees to generate the heat, prepare the cells for the eggs, and nurse the young. There must be an abundance of stores present in the hive, because when they reach a lower level of about ten pounds, depending upon the size of the colony, the bees "seem to sense a crisis" by beginning to reduce the amount of brood reared. There must be an abundance of pollen available for balancing the diet of the young larvæ. Lastly, there must be available combs suitable for rearing brood. An improper balance in these factors will curtail the amount of brood reared.

For twelve days previous to the honeyflow all conditions for favorable brood rearing were present, except that there was a decided shortage of bees. The average cluster would scarcely cover more than three modified Dadant combs. There was a gradual expansion of the brood nest, but it was slow, because, first, the clusters were not large enough to care for more brood, and, second, about twelve days after they began to build up, conditions were favorable for a honeyflow and the bees gave up their nursing jobs to gather nectar.

Incoming nectar is always placed as near the brood as possible, which explains why they place it in the empty cells left vacant by emerging young bees. These colonies were not strong enough in "house bees" to move it to the supers, so that barriers of honey limited the expansion of the brood nest. The result of this honey-bound condition is only realized when you have weak colonies during an ideal honeyflow and are trying to strengthen them for an expected late flow. These colonies were not forced to crowd the queens, because they were well supplied with drawn comb at the side or directly above as the size of the colony demanded. Foundation was used after the stronger colonies had filled their first super.

An analysis of the accompanying graph will indicate the conditions existing. These data were gathered from a package colony on scales, located at least a hundred yards from any other bees to avoid drifting. This package can be taken as representative of 550 packages put out between June 1-21. It was not as strong as some, but was a great deal stronger than others. This variation can be definitely accredited to the drifting of bees experienced where a hundred or more colonies are set out facing a field of sweet clover. An examination of a hundred package colonies which have been established two to three weeks reveals the value of strong clusters for rapid building of colonies, since one is dealing with young queens of about equal quality. The extremely reduced package has a uniform area of brood, but it often occupies only a small part of two frames. The undiminished package will be occupying from four to six frames, making a nice, compact brood nest. The few colonies which have been built up by drifters will now contain from four to eight pounds of bees, and the queens will be occupying from eight to twelve frames, each frame having a larger area of brood than those in the weaker colonies. These colonies are about ready for the honeyflow, not because they had exceptional queens, but because they thrived at the expense of their sister colonies.

The influence of the honeyflow and the number of available bees on the rate of brood rearing is shown by the graph. These results should be considered only for showing a tendency, since data from a number of colonies would be necessary for conclusive evidence. These results are accepted for showing a tendency toward the conclusions drawn because it seemed to develop consistently normal with the average of the other 550 package colonies.

The first brood count was made on July 11, or twenty-one days after the queen began to deposit eggs. Thereafter, each successive count was made every twelve days. Only sealed brood was measured, because it has been previously determined that all the eggs laid do not develop and become adult bees. The brood is charted for the period during which it was laid, and not for the time it was found in the hive, in order to determine what relation the honeyflow has to the rate of brood rearing.

From June 21 to July 2 the colony reared brood at the rate of 302 bees per day and gathered sixteen pounds of honey during that period. Since there could not have been more than three pounds of bees available, it shows a low rate of brood rearing during a good honeyflow. Between July 3-14, the bees only gained 12½ pounds and it was strengthened with emerging bees for at least four days. Less honey is stored than during the previous period by the colony which is somewhat strengthened, but at the same time we get a daily development of brood of 644, which is an increase of 342 over the previous twelve days. The two factors which influence this increase are, first, the bees are not gathering as much honey, so consequently they can engage in brood rearing activities; second, the colony is strengthened with emerging bees. The third period, from July 15-26, shows a development of 756 bees, or an increase of 112 more than the previous period. This small increase can be attributed to two conditions which tend to counterbalance each other. There was a much heavier honeyflow, since the bees gathered more than twice that of the previous period, or a total of 26.75 pounds. On the other hand, young bees had been emerging for sixteen days, which would strengthen the colony by replacing the old package bees which were not suited for brood rearing. The period between July 27 and August 7 gave a slightly greater increase, there being 144 more bees developed per day than during the previous period. There were more unfavorable days during this period, which caused the bees to remain in the hive, and their total gain was only 17.75 pounds of honey. More young bees were emerging, due to the increased rate in brood rearing as the colony developed—it was possible for a total of 9743 to have emerged by that time. It is interesting to note that not all of the original package bees had disappeared when the last count was made on August 16, or ten weeks after

they were established. This would indicate that the death rate was probably not very great during the first few weeks of activity; also that the bees' life is not always limited to a period of six weeks even under heavy honeyflow conditions.

On June 23, it will be noticed that this colony gained three and one-fourth pounds. It is probably safe to assume that very few bees were lost from June 12-23, because they were not feeding brood, nor secreting wax, nor were they gathering any appreciable amount of nectar. We therefore have some data as to how many bees are required to gather a given amount of honey. The queen had started laying two days before, so there could not have been more than hatching eggs to be looked after. Since there were only three pounds of bees in the colony, one pound of bees must have gathered at least 1.08 pounds of honey.

For the purpose of checking the number of bees engaged in gathering this three and one-fourth pounds of honey, let us utilize some data gathered by another observer, although it was taken another year and in another locality. Wallace Park collected some interesting data on the time and labor factors in gathering pollen and nectar, published in the American Bee Journal, June, 1922. His data were collected in 1920, during a good sweet clover honeyflow, at Ames, Iowa, and resulted in the following averages: The number of trips per day was 13.5 for each bee. The average load of nectar was 40 mg. Therefore, a bee making 13.5 trips, carrying an average load of 40 mg., would carry in 540 mg. in a day, which is equivalent to about 1-900 pound. That would mean that 900 bees could carry in one pound of nectar during a day. Since nectar is about four times the bulk of honey which it produces, one must assume that it will take four times 900, or 3600 bees to bring in one pound of honey during that day. The colony which is in question brought in three and one-fourth pounds of honey. Multiplying this by 3600, the number of bees required to bring in one pound of honey under favorable conditions, we get a total of 11,900 bees engaged in storing three and one-fourth pounds of honey, which compares relatively close to the approximate 15,000 in the package on June 12. It is recognized that for an accurate test for the number of bees engaged in gathering the given amount of honey the above borrowed data should be replaced with data collected from bees actually engaged in the harvest, since the size of the bee, wind conditions, distance from the honey plants, etc., would have an influence; also the relative proportion of water in nectar and honey might vary from the approximate relation given. However, the above application seems to bear out Professor Park's data. The bees in this colony were all about the same age; they were not feeding brood, and it is very evident that they were working under splendid honeyflow conditions. If this had been a colony having 100,000 workers, 60,000 of which were of the nectar gathering age, the colony would have gathered 66.6 pounds of nectar or would have stored 19.2 pounds of honey on that date. It will be recognized that June 23 was not the only day which produced a good honeyflow. It was selected for the above discussion because one could reasonably assume the number of bees in the hive at that time and they did not have to divide their energies between nectar gathering and brood rearing.

Stimulating Child's Interest in Bees and Honey

By Frank V. Faulhaber

FOR the first time in her young life a little six-year-old recently was given some honey. With wide-opened eyes she registered wonderment at the container and its sweet-tasting delicacy. Her attention had been caught by the little bees pictured on the label of the glass; then, her childish curiosity stirred, she questioned her mother: "Mama, what are those little bees doing there?" The mother looked at the glass, then replied: "Oh, those are the kind of bees that make the honey."

This enlightenment almost shattered the little one's credulity. Her eyes opened all the wider. After a pause, she queried further: "Those little things make such a sweet goodie?" The question was freighted with disbelief. However, her mother willingly went into detail to assure her that bees really did produce such a thing as honey. And, because of the parent's patience, the child's interest was further stimulated, not dismissing the subject until she had the mother's promise that she would "get more of those nice glasses with the bees on them,"—she liked the honey so.

Is there anything significant in all this for beekeepers? There ought to be. Certainly in this country there must be thousands and thousands of children who know not a whit about honey and its true source. Lack of this important and worthwhile knowledge, it is safe to state, blankets considerable of a large possible market. When more is known about a product, and particularly when more is known how that product is prepared, its demand is greater. Ignorance kills sales.

Beekeepers, especially those operating on a large scale, would find it to their profit were they to stimulate the child's interest in bees and honey. With an eye to the future, the little ones' desire for honey could be increased by educating them, and this could not be started too early. Schools—could not some co-operating be done here? Teachers and principals of schools would welcome the offer to explain to the pupils the true work of honeybees. Someone with ability for this could be assigned by the beekeepers at nominal expense. Often an assistant from the forces could be chosen. Subsequent results would far overshadow the small expense entailed.

Booklets or small pamphlets might be printed with the child particularly in mind. The teachers could be induced to instruct the pupils a little more on the big work the bees are performing. When the children have their minds riveted on this topic they would, naturally, think more about honey; they would talk to other children about it, also to their mothers—and so the good work would continue. There would be increased honey sales, particularly in those communities where the beekeeper is awakening the interest. He would find more of a local market, would get better prices; he could build up a good retail demand, and not find it so necessary to ship to distant points.

Small, suitable prizes might be offered for a few essays on honey and bees. Thus would come increased interest in the beekeeper's product; and this interest would not be confined to the little ones, either. Many people do not buy certain goods until their children insist that they do so; at any rate, when they do not think of honey, nothing is done about it. Little Jennie, or Johnnie, however, somehow always manages to turn mother's attention upon that new thing that is wanted. And certainly a bigger honey market can be reached by building up the child's interest.

By means of the local newspapers the honey producer has available another avenue leading to added interest in honey and bees. Editors are glad to print interesting and instructive articles; much valuable publicity for the beekeeper would result by

striving for the children's interest alone.

Essays that win prizes might be run in the local newspapers. Publishers realize they would sell more of their papers and would gladly go out of their way putting through interesting articles. On the whole, from the beekeeper's standpoint, the entire community's interest would be stimulated; so far as the children are concerned, they would acquire considerable beekeeping lore that would hold them in good stead later, and, looked at from any angle, the market for honey ought to be materially developed thereby.

Children who know the real work bees accomplish would more eagerly become interested in beekeeping. On this point alone considerable might be written. None will gainsay that even beekeeping would make greater strides if those undertaking it would, at the outset, be fortified with more beekeeping knowledge. Some initial efforts here by far-seeing beekeepers would encourage children to read text books on beekeeping and lead many to assume the work and hobby of beekeeping at an earlier age. And when those participating in beekeeping seek more knowledge they will accumulate information enabling them to perform the work better, quicker, and at greater profits.

Then, consider the possibilities represented in the visit to apiaries. Were the beekeeper to invite the school children to inspect his grounds, watching the bees work, and were he or some assistant to explain the divers processes in fascinating detail, further good would attend, not alone the valuable education that would now be the child's—the child who has observed and been enlightened entertainingly about bees and their products would naturally want to find out more about those products. So far as honey is concerned, there would be a satisfying jack-up of sales far exceeding expectations.

Every community, no matter how small it be, holds big possibilities here. The beekeeper who has found it difficult to dispose of his honey should, by getting the attention of the child, be enabled to sell most of his honey within his own neighborhood. If he reaches the child, he will reach the parents. The children will talk much of what they have learned, the elders themselves having, as a natural sequence, their own interest in bees and honey stimulated. And the bright side in this educational work is the fact that it can be followed throughout the year, notably in the newspapers; during the field-work days the child would be brought face to face with the real workings of the honeybees.

New Zealand Beekeepers Make Drive to Popularize Honey

That New Zealand beekeepers are making a strong drive to popularize their honey in Great Britain is apparent from a statement made by Edwin Smith, marketing specialist of the Bureau of Agricultural Economics, United States Department of Agriculture, who has recently returned from his London station. A honey display made by the New Zealand government in the display window of their London office on the Strand has made a strong appeal to the throngs of British people passing this point on the world-renowned thoroughfare.

In this display the New Zealand government has tried to familiarize the overseas buying public with the different grades of honey being shipped from their dominion. A sample glass of each of various grades was shown. The honey was in the granulated state as often served in English restaurants, though English honey has been had in liquid state.

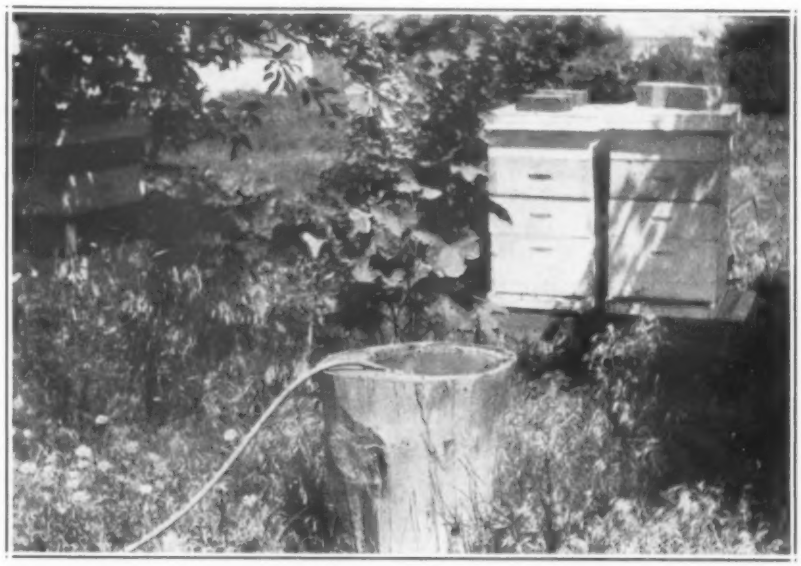
During the past year, according to Mr. Smith, the government of Great Britain has started an annual expenditure of $4,866,000 through the newly constituted Empire Marketing Board to increase trade between the dominions and colonies and the mother country. A part of this is being expended on an enormous advertising campaign in Great Britain to popularize Empire products among the consumers. The theme is that if the British housewife specifies Empire products, this will make the overseas farmers prosperous and increase their buying power for manufactured goods originating in Great Britain. How much this will affect the demand for American honey cannot be determined until the experiment has been carried on for a few years.

More Honey Recipes

"The Baker's Helper," published at Chicago, recently published an article offering many ways in which honey can be used in the bakery trade. In another issue an article on honey cakes was featured.

"The Western Baker," published on the Pacific Coast, also has recently featured the use of honey in baking, calling attention to the special value in bread. Such articles will do much to extend the use of honey in a neglected field.

PROVIDING WATER FOR BEES



A very satisfactory source of water in the apiary is shown in the accompanying illustration. The picture was taken in the apiary of Leon Newton, of Orchard, Nebraska. The end of a block of wood was hollowed out to serve as a container. A small pipe is attached to the water system and the faucet is turned down to the point where there is just a slight drip. The flow is only sufficient to care for the water taken by the bees and by evaporation, so there is no waste.

By this means the water is always kept fresh, the supply never runs out and the bees are prevented from annoying neighbors in search of moisture. Newton lives in town and is under the necessity of using care to avoid having his bees bothering others who live near. Those who have water available under pressure will find a suggestion here for providing a fresh supply at all times with a minimum of trouble.

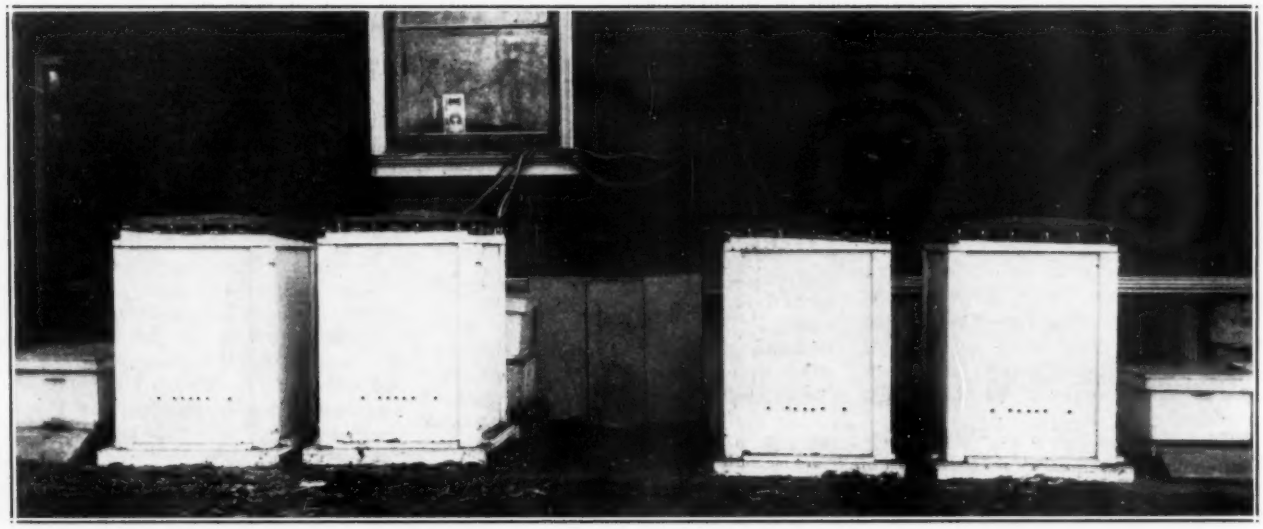


Fig. 1. The four hives of bees used. The cases were made of celotex. Each hive was packed with a different material and thermocouples located inside.

Insulating the Beehive

By G F. Wilson and G. E. Marvin, University of Wisconsin

HOW much and what type of insulation is necessary for the bee colony? This is a question which has long concerned the beekeeping fraternity, and much has been written in argumentation, both for outside packing and cellar wintering. The principal difficulty seems to be that no one has taken the trouble to accurately analyze the problem and to consider it on the basis of experimental data.

Recent investigations carried on at the bee laboratory of the Wisconsin Experiment Station indicate that bee cellars, type of packing materials and amounts to be used are relatively unimportant. By far the most important factor in good winter protection for the bee colony is a satisfactory windbreak. As to how the windbreak is constructed is not of such great importance. Any building, shed, fence or setting of trees that will protect bees from the direct winds will prove satisfactory.

The most important factor in bringing bees safely through the winter is the food supply. In addition, it is also important that the colony contain young bees. If the stores are pure and the colony is strong in young bees, they can, and do, winter under the most adverse conditions without any extra protection. Even temperatures as low as —27° Fahrenheit do not seem to interfere seriously with the successful wintering of a colony, and colonies thus wintered, in the hands of a number of beekeepers in Wisconsin, appear to thrive as well as apiaries that are packed out of doors or kept in bee cellars.

Spring packing may or may not be desirable, according to varying conditions. It is certainly true that heavy packing in the spring may be detrimental. Experiments conducted at the Wisconsin Agricultural Experiment Station show that during the spring period unpacked colonies on an average rear more brood and consequently have a larger number of bees at the beginning of the honeyflow than do colonies with excessive packing. The detailed results of these experiments are soon to appear in a publication from the beekeeping department of this station.

However, it is not the purpose of this paper to discuss the comparison of different amounts of packing, but rather to give some data on the comparative value of four packing materials. The chief factor which makes any packing material, good or bad, is the amount of moisture associated with it. Almost any kind of packing material, if it is thoroughly dry, will prove satisfactory. Thoroughly dry means not according to the feel or eyesight, but by actual evaporation tests. All packing materials should be kept in a dry place during the summer months, so that the free moisture may evaporate. Packing materials collected in the fall in humid regions are almost sure to have associated with them

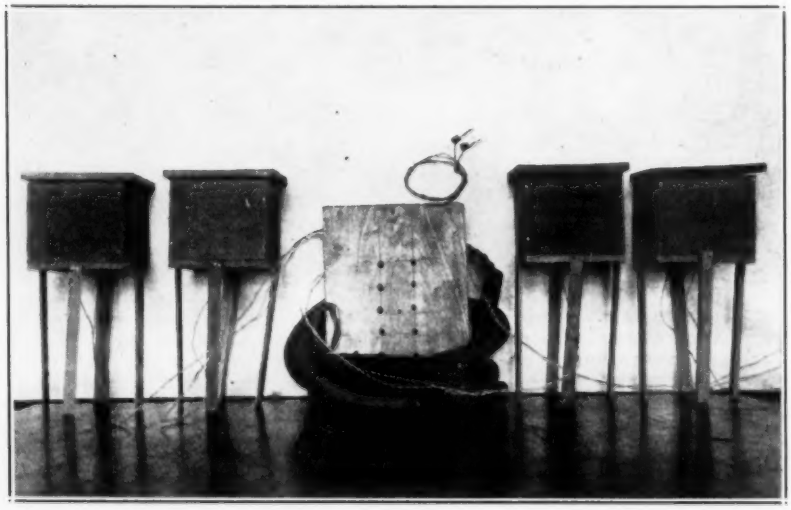


Fig. 2. The thermocouple boxes which were placed in the center of the cases shown in Fig. 3. Two thermocouples in each box, wired from each lead into the laboratory, where temperature readings could be noted any time.

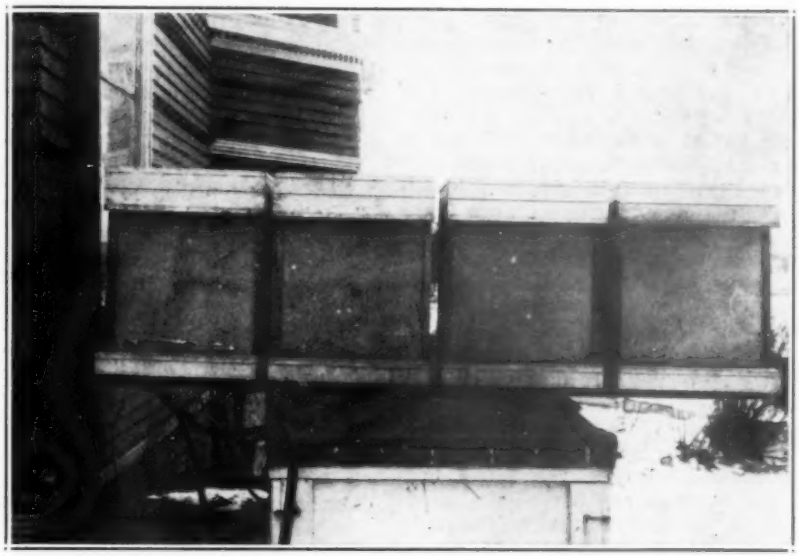


Fig. 3. The insulation testing cases in which straw, clover chaff, leaves and shavings were tried out

10 or more per cent of free moisture, and this is sufficient to take away at least 50 per cent of the insulating value of many materials, particularly common straw. When straw is thoroughly dry, not very coarse and well packed in the packing case, it is a rather efficient insulating material.

Leaves and clover chaff taken from the field may contain considerable moisture, although they appear to the touch and sight as dry. But, it is possible by drying out these materials in a warm place to remove the surplus moisture so that they become efficient packing materials. In practical field tests, shavings give the highest insulation values. This is undoubtedly due to the fact that the shavings come from lumber that has been kiln dried and therefore the moisture content is reduced to the minimum.

In making these tests for comparative values, two experiments were carried out. In the first experiment the four colonies of bees shown in Figure 1 were used, each being insulated respectively with four inches straw, clover chaff, leaves and shavings inside of Celotex cases. The second experiment consisted of four boxes, Figure 2, four inches square, packed in larger cases, shown in Figure 3, with six inches of the insulating materials around each. Two thermocouples were placed in the center of each box. The outer cases of these were also made of Celotex. Graphs of tests are shown in Figure 4. These graphs show the temperature changes in each of the four hives and four boxes. The four hives were located on the east side of the Entomology Building and were quite well protected from the northwest winds. The four separate boxes were so placed that they were continually subject to changes of temperature, and in order to get satisfactory comparative results for the straw and shavings, they were interchanged so that each of these boxes at one time stood in the full exposure of the sun. So far as could be observed, this did not affect the differences in the temperature readings for these two materials.

In the four boxes, straw is shown to have less insulating value than any of the other materials. Clover chaff taken from the barn, and leaves taken from the field have almost the same insulating value. Bale shavings show the highest insulating value in these tests. It will be noted that the straw follows very closely the outside temperature with only a slight lag. Clover chaff and leaves were

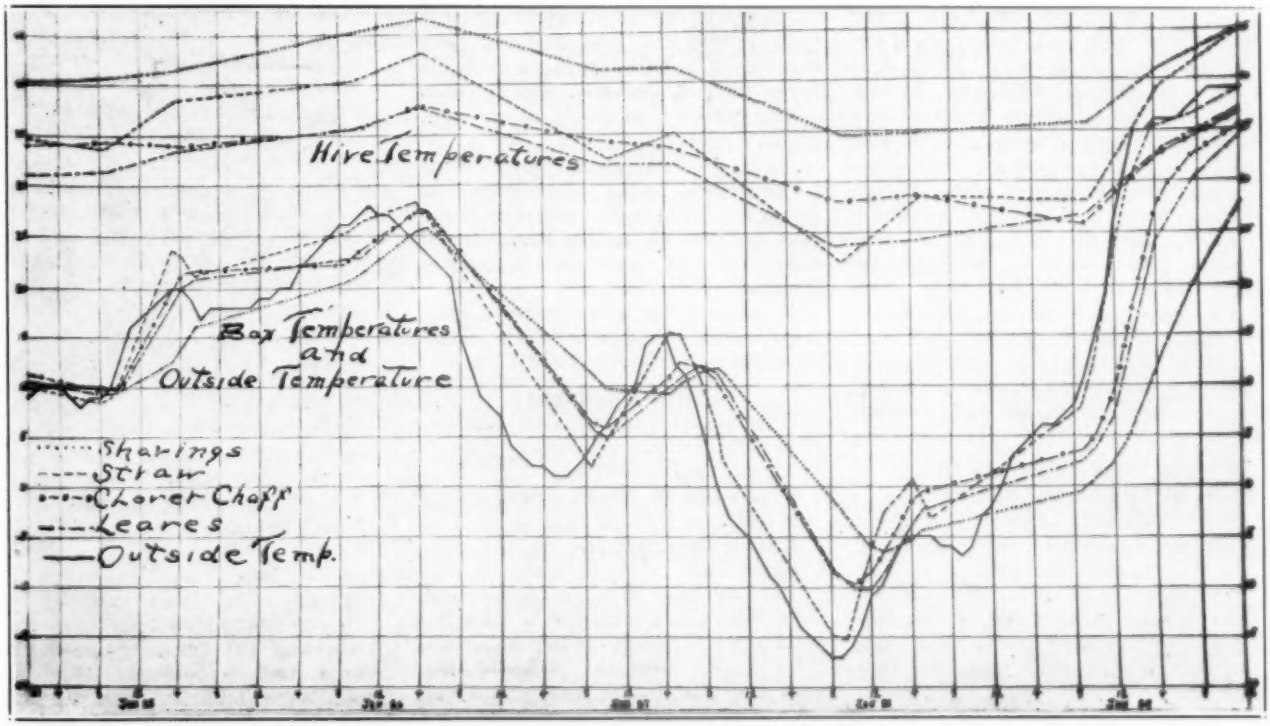


Fig. 4. The upper lines show the hive temperatures taken just below the inner cover at the rear of the hive. The lower one shows the temperatures within the insulation boxes. The outside temperatures shown in a solid black line.

midway between the straw and shavings with a somewhat greater lag. The shavings gave a much more even insulation, not being as quickly affected by the outside temperatures and always being well above the lowest and below the highest outside temperatures. The temperature readings taken in the hives are from thermocouples just below the inner cover. They are located at the back and on the inside of each hive and should give a fair indication of the conditions just inside the hive, as this point was the farthest one from the entrance. In this location, the entrances of the hives being towards the east, none of them could be greatly influenced by direct heat from the sun's rays, and they were, to some extent, protected from direct outside temperatures because the cluster was between these thermocouples and the entrance. They were also probably influenced slightly by radiation of heat from the cluster.

In that section of the graph showing the temperatures in the packed hives, the curve representing the colony with straw ran at a higher temperature than with the clover chaff and leaves when temperatures were high. But it also ran lower when the temperatures were low. This shows that, within the hive, the straw was more quickly affected by outside changes in temperature than the others. The quantity of bees present in each hive probably made a difference, as there were approximately six pounds of bees in the two hives packed with shavings and straw, while there were only three pounds in the hives packed with clover chaff and leaves. The uniformity of the temperature curves produced with clover chaff and leaves, although lower than the shavings, indicates that these materials will serve reasonably well for packing materials.

Good Honey Publicity

THE Kellogg Company, of Battle Creek, Michigan, realizing that the best way to extend the sales of their products is by suggesting ways which will make them most palatable to their customers, are suggesting combinations with other foods. Among the things, they recommend honey for use in connection with their cereals. Since the output of their factories is more than a million packages daily, many persons will thus be reminded of honey who would not otherwise have it brought to their attention.

In like manner the beekeeper can help along his own sales by calling attention to the things which can well be used with honey. The following suggestions offered by the Kellogg Company to their customers may well be passed along by the beekeeper. By boosting for Kellogg products while they boost for ours, we find a mutual benefit. The article by Miss Brooks was sent to several hundred newspapers. Since their general advertising mentions honey in similar manner, our craft is sure to benefit:

DO YOU LIKE HONEY?
By Barbara B. Brooks
Kellogg Company
Home Economics Department
Battle Creek, Mich.

If asked the question "Do you like honey? nine persons out of ten will answer in the affirmative. But further questioning will reveal the fact that they eat this sweet only semi-occasionally and very rarely use it for cooking purposes.

There is no other food the name of which brings fragrance, flavor and texture so vividly to our minds. Aristotle even declared honey to be dew distilled from the stars and the rainbow. This is a pretty fancy, but the way honey is made by the bees is hardly less wonderful. Nectar from blossoms is sweetness, water and the oils which give each flower its characteristic perfume. The bees transform this into the honey that we all know.

Honey being a natural sugar is easily digested. The simplest way to serve it is either in comb or liquid form with hot breads. It is often served with cereals and to sweeten fruits.

Many housewives in other lands make honey cakes. The recipe for Honig Kuchen, or German Christmas cake, is very old and has been handed down from one generation to another for many years.

The following honey recipes have been tested and found delicious and practical:

Daffodil Meringue

2 tablespoons granulated tapioca.
½ cup honey.
1 pint boiling water.
2 tablespoons lemon juice.
3 eggs.
1 tablespoon butter.
Pinch salt.

Moisten the granulated tapioca with cold water and stir it into the boiling water. Salt lightly and cook until clear. Beat the yolks of the eggs and beat in the honey with the lemon juice and butter. Add this gradually to the tapioca and cook over hot water until it thickens—about twenty minutes. Pour into a buttered dish, adding a little candied lemon peel if desired. Cover with a meringue made from the whites of the eggs beaten with three tablespoons of honey, and bake to a delicate fawn color.

Honey Corn Flake Muffins

1½ cups corn flakes.
2 cups milk.
1½ cups graham flour.
¼ cup honey.
2 cups white flour.
5 teaspoons baking powder.
1 tablespoon shortening.

Mix melted shortening with honey, add to one egg beaten lightly, then add milk. Stir in the dry ingredients which have been thoroughly mixed. Bake in well greased muffin tins for thirty minutes. (Will make thirty-two muffins.)

Soft Honey Cake

1 cup butter.
2 cups honey.
2 eggs.
1 cup sour milk.
4 cups flour.
2 teaspoons soda.
1 teaspoon ginger.
1 teaspoon cinnamon.
¼ teaspoon salt.

Cream butter and honey well, add beaten eggs, sour milk, flour sifted with soda, spices and salt. Mix well and bake in layer tins. (375° F.-400° F.)

Honey Corn Flake Muffins

¼ cup butter.
One-third cup honey.
1 egg.
1 cup milk.
2 cups flour.
5 teaspoons baking powder.
¼ teaspoon salt.
2 cups corn flakes.

Cream butter and honey and add well beaten egg, then milk and flour sifted with baking powder and salt and lastly the corn flakes. Bake in small sized greased muffin tins twenty minutes. (400° F.) Yield, twelve muffins.

Honey All-Bran Cookies

½ cup sugar.
¼ teaspoon cinnamon.
¼ teaspoon ginger.
½ teaspoon soda.
1 teaspoon baking powder.
1 cup flour.
3 cups All-Bran.
½ cup honey.
½ cup milk.
½ cup melted butter.

Mix and sift sugar, flour, baking powder, soda and spices. Add All-Bran, honey, milk and melted butter. Drop from a spoon on buttered baking sheet. Bake for fifteen minutes in a moderate oven. (Reprint

from "The Mirror," New Zealand.)

Sweet Clover Honey Taffy

1 cup honey.
One-third cup cold water.
1 cup sugar.
1 teaspoon vanilla.

Boil the water, honey and sugar together to 288° F. (a hard ball in cold water). Add vanilla or other flavoring if desired. Put on buttered dish to cool, then pull until white. If the pan in which the honey is cooked is buttered around the top, it will not boil over. (Mrs. Kenneth Sadler, Hardin, Montana.)

Honey and Sugar

1. Can you give us an idea of the analysis of honey. 2 In what way does it differ from sugar?

Texas.

This enquiry was sent to Mr. James I. Hambleton, United States Apiculturist, and the answers follow:

1. Granulated white sugar is practically pure sucrose (carbon 12 parts, hydrogen 22 parts, oxygen 11 parts), being 99.7 to 99.8 per cent pure sucrose. It is as pure a commercial product as is known and contains only traces of mineral matter and one-tenth of one per cent or less of organic matter, traces of moisture and of invert sugars.

2. As you will note from the analysis of honey, it contains three sugars, these being mainly the invert sugars, dextrose and levulose, with a small per cent of sucrose, which is, as stated above, the equivalent of ordinary white granulated sugar. The pure food laws permit not more than 8 per cent of sucrose in honey. Generally, however, the sucrose content of honey is much less than 8 per cent.

The Average Chemical Composition of Honey

1. Original sample of honey, 500 cubic centimeters, or a total weight of 725 grams.

Substances that can be determined quantitatively:

Substance	Per cent	Weight grams
2. Water	17.70	128.325
3. Levulose (fruit sugar)	40.50	293.625
4. Dextrose (grape sugar)	34.02	246.645
5. Sucrose (cane sugar)	1.90	13.775
6. Dextrins and gums	1.51	10.9475
7. Ash (mineral matter: manganese, magnesium, phosphorus, etc.)	0.18	1.305
Total	95.81	694.6225

Substances difficult or impossible to determine quantitatively:

Total	4.19	30.3775

8. Pollen grains
9. Beeswax
10. Albuminoids (proteins)
11. Formic acid
12. Malic acid
13. Chlorophyll decomposition products
14. Yellow pigments
15. Carotin (a plant pigment)
16. Xanthophyll (a plant pigment)
17. Dark pigments of unknown composition

Substances known to be present but difficult to demonstrate:

Enzyme:
- Invertase (converts sucrose to dextrose and levulose)
- Diastase (converts starch to maltose)
- Catalase (decomposes hydrogen peroxide)
- Inulase (converts inulin to levulose)

Aromatic bodies—terpenes, aldehydes, etc.
Higher alcohol—mannitol, dulcitol, etc.
Rare sugars, melezitose, etc.

Half-Story or Full-Story Supers—Which?

During my travels among beekeepers, I often meet men who object to shallow supers, because, they say, it is preferable to have all frames alike. Although there is something in that argument, it has little weight with me. Let me explain:

With the Langstroth standard frame, which is now recognized by many people to be too shallow, and with the ten-frame hive, which most people consider insufficient for a full supply of honey, there is often need of what is now called "a food chamber," a modern wise addition to what used to be called sufficient. So with the standard Langstroth hive, full-story supers prove of use.

But with the deep frame, if the hive is fairly supplied with stores, the brood chamber of ten or eleven frames, Dadant size, is ample for all the needs of the colony and the brood. So the upper story is rarely used for anything but surplus. There are two great advantages to shallow frames in the supers. The first is that the combs may be placed farther apart than in the brood chamber, giving more honey in a less number of combs. The cells, being built deeper, are not suitable for the queen to lay eggs and the bees fill them with honey more promptly. We often have only ten combs, sometimes only nine, in an eleven-frame super. If we used full-story combs, they would often be misplaced and used in the lower story and the bees would have to cut down the cells for breeding.

On the other hand, a queen is more likely to go into the upper story to breed, if the combs are of full size. As such a story contains more space, the bees do not fill them so promptly and the queen has time to fill the cells next to the lower story before they are filled with honey. That is why so many people complain that their queens migrate to the upper story and leave the lower story unfilled. This happens much more rarely with the shallow super. Shortly after it is put on, the bees fill the cells with honey above the brood combs and this has the result of confining the queen to the lower story, where she belongs.

There is another point. Queens like to lay eggs in a circle. This is readily noticed by the beekeeper when he examines combs of brood. Thus the queen will give preference to deep combs; she may go up into an upper story, but she will be less likely to stay there if she finds shallow combs than if she finds combs as deep as those of the regular brood chamber.

These matters are not a question of opinion, with us, they are tested by experience, on hundreds of hives in both styles. At one time we used about a hundred full-story supers in Langstroth hives. We give the preference, always, to the hive of deep frames, with half-story supers. We might add that combs of honey are much more easily handled and much more readily uncapped when of the shallow style. But we might add also that our shallow stories are deeper than those which have been used by Langstroth hive users. Our shallow supers contain about six inches of comb and about two-thirds the contents of a regular Langstroth comb. We consider them useful, nay, indispensable, for profitable beekeeping. C. P. D.

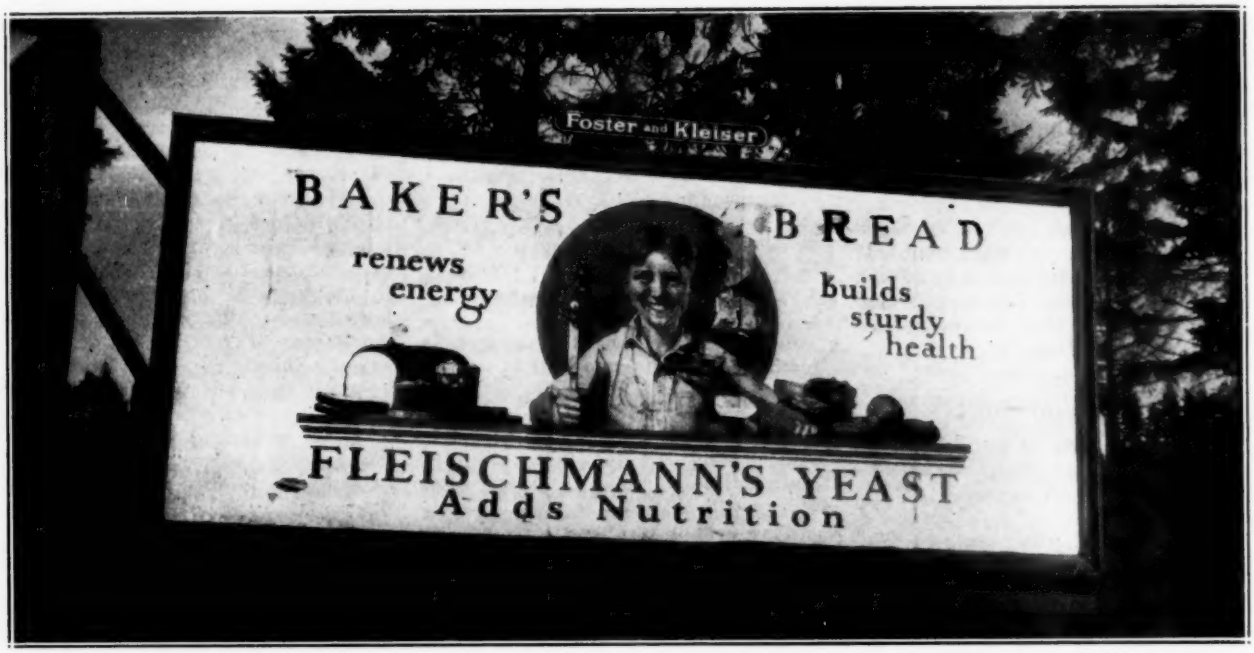
Bees Hold Up Town

Three swarms of angered bees held sway in Port Huron, Mich., Sunday, July 10, driving the pedestrians to cover and forcing a temporary halt in motor traffic at two main street intersections.

More than 40,000 of the invaders, massed army-like in three squadrons, gathered at Glenwood avenue and Ontario street, and Park and Ontario streets.

The attack began. It grew in ferocity while police pondered the delicate problem. Finally William Blake, a bee expert, was summoned. Within two hours he had gathered the bees together.

No bee farm is located near Port Huron, and authorities do not know from where the invaders came.



Fleischmann advertises yeast to help those who use it. Cooperative advertising is very effective. Honey could well be advertised in the same manner

Some Possibilities of Cooperative Advertising

By Natt Noyes Dodge

SO much discussion of honey advertising has appeared in the several beekeeping periodicals during the past year that it would seem that the various phases of the subject had been quite thoroughly covered. The consensus of opinion seems to be that very little headway can be made toward increasing the consumption of honey until some plan is evolved whereby the merits and advantages of using honey as a staple sweet can be pointed out to the people so plainly and persistently that they will be forced to give heed.

This necessity for advertising is counterbalanced by the fact that any campaign of sufficient magnitude and duration to accomplish the desired results would cost an enormous sum of money, and that under present conditions the beekeeping fraternity is incapable of financing such a gigantic enterprise even though it had an organization and a foundation composed of stabilized grades and prices to make it feasible.

Into this dilemma which faces the honey industry the Kellogg Company has stepped with the plan of recommending the use of honey in conjunction with Kellogg food products. That the publicity thus given to honey should bring satisfactory results is believed by all honey producers, many of whom have shown their faith and gratitude by sending messages of appreciation as well as by boosting for the increased use of the Kellogg goods. Beedom is now eagerly awaiting the results of the initial appearance of the new Kellogg program.

It would seem that a way had suddenly been opened through a hitherto impassable barrier. Why cannot this method of indirect and cooperative advertising be carried farther? For example, an advertisement featuring California lemons, which recently appeared in a city newspaper, reads as follows:

"Look out for colds! At the first sign of chills or sneezing, use hot lemonade. * * * Just squeeze out one California lemon into a glass of hot water. Add honey or sugar if you wish."

An excellent opportunity for honey advertising only partially used. Suppose the last sentence had read, "Honey for sweetening will add greatly to the effectiveness of this drink as a cold preventive." Just a few words, but they would convincingly impress the reader with one of the many uses of honey as well as adding to the attractiveness of the appeal for drinking hot lemonade. Would it not be possible to suggest this honey advertising program to the backers of the California lemon? Would they not realize that here was a fine opportunity for free publicity for them through the columns of the bee papers and by the boosting of thousands of beekeepers in the United States? This is cooperation in the true sense of the word. Financially, beekeepers are powerless of accomplishment, but as consumers of food products the combined capacity of the bee men of the nation with their families is enormous and well worth the attention of any organization, particularly when no added expenditure is necessary in order to gain the good will and active support of the thousands interested in the welfare of the honey industry.

But why stop here? How about the manufacturers of waffle and pancake flours whose products are nationally distributed and advertised? A jar of honey in their picture-ads in place of the common syrup pitcher would not only add to the appetizing phase of the suggestion, but would assure the flour company the staunch support of beekeepers the country over, who would not only use this flour in preference to any other, but would assist in establishing it in grocery stores that did not stock it upon the shelves. The accompanying photograph shows a billboard designed by the Fleischmann Yeast Company. It features, however, the health and energy values of bakery bread, in an attempt to create a greater demand for this product. It is obvious that the real purpose of this advertisement is to obtain the good will of the bakers by thus boosting their business with the expectation that they in turn would

show their appreciation by using Fleischmann's yeast in the making of the bread. This poster is an excellent example of cooperative advertising carefully and artfully carried out. The further possibilities of this poster are disclosed upon closer examination of the display. It will be noted that the boy in the picture, whose expression of enjoyment portrays far better than words the palatable qualities of the bread, is using plentiful quantities of jelly or jam as a spread. The exact character of this article is left to the imagination of the observer, although the jar is in plain sight directly in front of the loaf of bread. Now if this jar were of a trifle different shape and color and bore a label lettered HONEY, what an entirely different impression it would give, what a horde of beekeepers would use bakers' bread and Fleischmann's yeast, and all of this without a single cent of added expense to the promoters of the advertisement.

A wide field for cooperative advertising lies before the honey industry, a unique field as yet little explored, and one certain to appeal to the general public; a field offering wonderful results with practically no expense—in fact a chance to buy national advertising with good will. Here is an opportunity for the National Honey Producers' League to prove itself, and sell the idea to some of the manufacturers of nationally distributed and nationally advertised food products.

Washington.

A Veteran Beekeeper

By C. A. Emery

FOR nearly thirty-five years Harold Davenes has been an enthusiastic bee man and actively engaged in the production of high grade honey. For the past twenty-two years his apiary, high up in a canyon of the Sierra Madre Mountains, has been a favored location where, after his workers had gathered the nectar from the orange groves in the sheltered valleys below, they were taken to Newhall to leased pasturage to gather the sweetness from the widespreading acres of purple sage. Mr. Davenes admits that it is quite an undertaking to load at least one hundred hives of these honey gathers on a truck and jaunt away in this fashion, but he insists that there is a joy about it all that nothing else can give. The run of the sage is usually about six weeks' duration and all the while Mr. Davenes, who has established temporary quarters in a tent close by, spends his days busily intent on aiding the almost frantic rush of his bees throughout the sage harvest. At its close he brings his bees and all equipment back to the home apiary, where they finish the year foraging on local flowers and mountain shrubbery.

Mr. Davenes' sole product is extracted honey and his annual output, which normally averages about nine tons, is sold direct to the consumer in both tin and glass containers. He is very insistent upon allowing his honey to remain in the supers until it is thoroughly ripened, and thus secures the full fine flavor and at the same time insures a dependable keeping quality. In average seasons he reports a yield of thirty pounds of orange honey per colony, with a heavier yield from both the black and purple sage, all of which is most comforting and helps to equalize the occasional "off seasons" when the supply of honey is scarcely more than the amount needed for actual maintenance of the bees.

Mr. Davenes believes that there is a humanizing influence about the keeping of bees that makes all real apiarists friendly folk who are ready to help each other in every way possible. In his opinion it is the novice, the owner of only a few swarms of bees, who is reluctant to cooperate with the local bee inspector. It has been his experience that the older, more experienced apiarists are ever on the alert to eradicate disease in their own hives and prevent the spread of communicable disease in their community.

Because of his somewhat isolated location and the cleanliness that is an imperative factor in his working program, he has his full quota of active, healthy bees, and intends that such beekeeping shall be his vocation for many happy and profitable years to come.

Look Out for Colds!

AT the first sign of chills or sneezing—use *Hot Lemonade*. Take it immediately after a warm bath.

Then go to bed under plenty of covers. You'll perspire freely.

Nine times out of ten the cold will be gone in the morning and you'll feel fresh again.

Prevent possible pneumonia or the "flu" in this surest, safest, cheapest way.

With this simple treatment you avoid days of sickness and their costs.

This is the healthful way to end a cold—for lemons, though known as acid fruits, have an alkaline reaction in the blood.

Just squeeze one California Lemon in a glass or cup of hot water. Add honey or sugar if you wish.

California Lemons are the tart, juicy and practically seedless kind—so always ask for them.

California Lemons

Lemons advertised for health, a possible avenue for honey advertising

Horses Killed By Bees

John Kilworth, well known farmer of the Exira community, received serious infection Tuesday afternoon when he was stung by bees. Two horses were also stung by the bees, and died within half an hour.

Mr. Kilworth was mowing in an orchard on his farm Tuesday and a hive of bees was upset by the mower. Both horses were stung so badly that they died within a short time. Mr. Kilworth, while trying to unhitch the team, was stung many times on the face and head.

Medical aid was promptly summoned, and although Mr. Kilworth's face was badly swollen, prompt attention relieved his suffering to some extent and he will recover.—Audubon, Iowa, Advocate.

While sending us this clipping, Mr. Peterson, of Kimballton, says that the item is not quite correct; that a swarm of bees tried to settle on Mr. Kilworth's horses and that he was stung while trying to protect them. He also says that no one knew where the swarm came from, as there are many bees in the vicinity.

Jamaican Honey Exports, 1926

The exports of honey from Jamaica during the year 1926 to all destinations amount to 1,616,485 pounds, according to a report received from American Trade Commissioner Macgowan, San Juan, Porto Rico.

Getting Acquainted With Apis Dorsata

By Miss A. C. Munro, R. N., Parlakimedi, Ganjam District, India

BEES! Bees! Bees! Look at them—everywhere! Whatever has happened? They're dead—no, they're not. Well, say—I never saw anything like this before! I guess they're just chilled—but say, I wouldn't want to get stung by them when they are warm again. Aren't they huge, though? I wonder if they aren't Apis dorsata? They must be.

I'll tell you about them, Alex. They were the specimens I sent you from Ooty, and you identified them as the giant bee. I wish you could have been along with me that morning and seen all that I saw—Government House, Ootacamund, its windows curtained with rich, thick honeycomb, heavily embroidered in a design of living bees. You know I've been accustomed to bees all my life, but I never saw them elsewhere or before after this fashion. The cement walks, entrance pavement and steps were carpeted with bees. I cast about for something—a box, a tin can, a piece of paper, anything in which I could gather a handful, but on those well kept grounds not so much as a blade of grass seemed out of place. How could I do it? In my pocket? No, they would get away. In my topey? But I couldn't take it off—I'd get sunstroke. Tie them up in my handkerchief? Sure! And that's just what I did. They were soaked with dew, and chilled and stupefied, but it wasn't long before they were merrily (?) buzzing. I felt that I was entitled to be called either "the keeper of the bees" or a "beekeeper." So far as the government house superintendent and servants were concerned, I was welcome to them all. Everything was in readiness for Viscount and Lady Goschen except to get rid of the bees, and to attempt that required as much courage as to face an army with guns. Indeed an amusing incident of the present conflict in China was that of a wing of the Nationalist forces who thought they had found real plunder and charged an apiary. They retreated with great expedition. A missionary hiding in a bamboo clump saw the fun.

Well, we wanted to see the interior, so we were conducted by a courtly and turbaned guide. This is the ballroom; it is made somewhat gloomy because the sun's rays cannot freely pass through the honeycomb on the windows. "We must exterminate the bees before their excellencies arrive," he observed. We passed on and up the staircase whereon had tread the feet of mighty statesmen—makers of history. Trophies of hunting, prayer rugs and oriental carpets on the walls fascinated us and we should like to have known the particular interest in each one, but now we were upstairs, in what had been Lady Willingdon's reception room. The carpets were mauve, her favorite color—different very; but in a moment it seemed all right—yes, quite all right. But what if Lady Goschen's favorite color should be another. "This was Lady Willingdon's breakfast room, a beautiful and sunny exposure, but I must apologize for the honeycomb on the windows; we must exterminate these bees before their excellencies arrive."

The honeycomb was clean and full and sealed and the cells unusually large in depth and breadth, and nearly filled the casement windows. I don't know what success attended their efforts, but I should say that it should have been a sweet trophy had there been no "barks" to attend the taking; and furthermore I will not say, but it may have been these same bees, disgruntled after being dislodged, that attacked a very well known and perfectly respectable family, residents of the Nilgiris, enroute from Kodaikanal to Ootacamund, and stung them so badly that father, mother and daughter had to be taken to a hospital to be cared for, and for some days their several eyes remained closed to daylight and delight. On the other hand, these may have been the bees I saw later, high, high up in a eucalyptus tree, with golden comb suspended from a limb sixty feet above the earth.

Thus I came to make the acquaintance of Apis dorsata.

Honey Production Cost

By George H. Vansell

FEW honey producers, or other agriculturists, can give figures showing the cost of production. The following is compiled from actual records kept by A. K. Whidden, of southern California, over a period of eight years. Those of us who have sold honey at the prices paid since the war know well how much profit has **not** been made:

Cost Per Pound Per Year	
1919	$0.2106
1920	.0558
1921	.1478
1922	.0436
1923	.4242
1924	.0867
1925	.1188
1926	.0420
1927	Very high

Average, total cost divided by total pounds, .075.

"The above figures would make it appear that the losses were much greater than the profits. My wages and interest on investment, which some might term a profit, are included in costs. The large number of pounds on which to compute the small gains per pound on the good years overbalance the large losses on the small number of pounds on poor years."

Average annual cost of operation over period of eight years from January 1, 1919, to January 1, 1927, computed on basis of 100 colonies:

Home labor	$334.13
Hired labor	6.09
Hired hauling	10.43
Repairs and replacements	38.72
Feed	17.31
Cans and cases	117.84
Rent	10.40
Taxes	11.06
Gas and oil	35.56
Truck and trailer repairs	67.85
Truck and trailer depreciat'n	40.70
Truck and trailer, interest on investment	13.93
Int. on all other investments	97.74
Building depreciation 10%	13.24
Machinery depreciation 10%	4.41
Insurance, one-half of 1%	6.12
	$825.53
Beeswax sold	23.86
Cost of production	$801.67

Honey sold, 10,676 pounds. Cost per pound over entire period, 7½ cents. California.

Brenner to Study Bees in Santo Domingo

Some time ago, I invited my old friend and very well known clover beekeeper, Mr. H. Brenner, who was traveling in Germany, to make another trip to Santo Domingo and pursue his researches in tropical beekeeping in my apiaries. He answered accepting my invitation and will be here in the near future, and I would like his old intimate, the American Bee Journal, to give him welcome.

Peace and work are making of this country the paradise of beekeepers, without wintering or feeding our always very populated hives.

Dr. B. Maldonado,
Sanchez, Dominican Republic.

Creosote---A Warning

I am told that great care is needed where the **insides** of hives are dressed with creosote, as would be the case where the K. D. parts are dipped, to see that no smell remains when hives are supered, and that supers should on no account be used when dressed inside until all smell has entirely vanished, otherwise the honey may be tainted. R. B. Manley.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

RENDERING WAX

1. Am new in the business. Bought several stands of bees in the old round hollow logs. Have transferred them to new up-to-date hives with wired foundation and have quite a lot of comb left. How can I render it into wax to make it salable? I have no appliances for doing it by machinery.

2. I filled a ten-frame hive body with brood from each old hive and set underneath the body filled with the bees with hive of foundation, about three weeks ago. Should I remove them or let all go on till next spring. Bees are working fine in all. Am not looking to take honey from them this year—only want strong colonies to winter well. What should I do?

3. I have one stand that is very strong and working well but they sting everyone that goes near them, simply fierce. What had I best do with them? All my other stands are very gentle and do not sting.

MISSOURI.

Answers.—1. An ordinary wash boiler will do well if you have nothing else and can make your peace with the women folks for getting their wash boiler all sticky with beeswax. Crush and break up the combs, then put them in a very thin sack and place them in the boiler, which you will fill with water. Put on the stove and heat, pressing down the sack full of combs and stirring it occasionally. A little basket made of screen wire should be dipped into the mixture. The wax will get into the basket and you should dip it out and pour it into a flaring mold, a pan, or crock. Be careful not to let the thing boil over. When no more wax comes, the job is done. The wax in the flaring vessel, after all is rendered, may be melted up again to purify it.

If all that is too much trouble, put your combs in a sack and ship to Dadant & Sons. Better use double sacks, so nothing will lose out. Be sure that you don't have any leaking honey in the combs.

2. Your management is all right. You may leave the two hives together till spring.

3. The only way to cure a colony of cross bees is to insert another queen, killing the queen they have at the time of introduction. It is in the breed usually.

KILLING BEES IN FALL

1. I should like to see a discussion in your paper on the advisability of killing bees in the fall and replacing them by packages in the spring. The winters are so long here that to my mind, the amount of honey consumed would pay for the packages, and we should have new, young bees to start with. Also, the queen could be killed when her brood would be too late for the honeyflow, and the honey, which would otherwies be used in brood rearing, would be saved.

2. Also a discussion of what the buyer can expect his packages to be. Is two pounds the actual weight of bees in package, or is it merely a certain size of package?

In twenty-two packages, three queens were drone layers. Could I expect replacement? If I do kill my bees in fall, I should want to know exactly what I can expect when I purchase packages.

ALBERTA, CANADA.

Answers.—1. Personally, I would not for a minute consider the idea of killing my bees in the fall to replace them in spring with purchased packages. It ought not to be difficult to winter bees in cellars in your region, not much more difficult than to winter them in Quebec. Mr. J. Verret, of Charlesbourg, near Quebec, winters over 100 colonies every year in his cellar and has no loss of any amount, although he has kept bees 186 days in the cellar. When you order bees from the South, no matter how careful the shipper may be, there are a number of possible occurrences which you may meet: rough handling on the trains, exposure of bees, etc. This will always make the shipping of packages in early spring more or less precarious.

This matter should be discussed, and it would be a good plan to have the views of the southern breeders.

2. Two pounds should be two pounds of bees, net, at arrival. It is not probable that the shipper sent you drone layers, but they may have become so by the fatigue of the trip. Bees will always be more or less tired by traveling such great distances. Queens that travel very far may be damaged in their prolificness and activity unless the packages are very carefully handled on the way, and that is not always certain.

WINTERING

I lost twenty colonies of bees last winter, wintering them outside, packed in straw, and believe the loss was due, in part at least, to the water which condensed on the covers and dripped down on the bees. The combs were all quite moldy which would show it must have been quite wet inside. Their entrances were one hole ¾x¾, with the summer side of the bottom board up. This hole was covered with No. 3 galvanized mesh. And so I am planning on placing a super of planer shavings on the bees this fall to absorb this water; and here are the questions:

1. Would you advise a shallow extracting or a full-depth super of shavings? There will be about five inches of straw on top of this, and roofing paper on the straw.

2. Would an escape board with four escape holes (mine are fixed that way for feeding purposes) be all right to let the moisture through, or would it be best to use gunny sack?

3. Would it be best especially if I use the full-depth super of packing to put an escape board with one hole over this super of packing to let the moisture escape as it comes through the packing, or would it let so much heat escape that the regular cover will be necessary?

SOUTH DAKOTA.

Answers.—You are right in thinking that the loss of bees must have been due to condensation of water within the hive. Your bees did not have enough ventilation.

1. Either a shallow super or a deep one will do to contain absorbents above the cluster.

2. I would prefer a gunny sack or some paper, with the shavings or other absorbents above this.

3. I would not use anything but the cover over the shavings. When the moisture escapes from the bees, they are all right if there is no current of air to cool the hive too much.

We do not reduce the entrance very much, but it will not hurt to have a narrow entrance if the air within the hive is allowed to discharge its moisture in the super above. It is the confined air which is injurious. Have the hives well protected against winds, facing the sun and as quiet as possible. If you can furnish them outer coverings, so much the better.

TREATING DISEASE

I have five colonies of bees. I find that two of these colonies have what I suppose to be American foulbrood; a few cells have a very dark brown substance which strings out when I stick a match in the cell. There are very few of these cells (colonies are only one year old). I had a young gray Caucasian queen in one hive and Italian in the other. I have taken the queens from both colonies, but wish to use the shake treatment, combining both colonies, and again use the Caucasian queen. I want most of the brood to hatch, so that I may render and sell the wax.

Please advise me the correct way to do this treating, also if it is proper to cage queen, and if the wax may be sold to any dealer.

IOWA.

Answer.—Yes, that must be American foulbrood beginning in your hives. You must treat them while the honey crop is on. You are correct in wanting the brood to hatch out. Keep the queens caged until it is time to act. Shake the bees on empty frames with only a starter in them. After two days shake them again on frames full of foundation; then turn the queen loose.

The wax of those combs will be all right to sell after it has been rendered, as the amount of heat used destroys the germs of disease.

QUEENS FAILING AFTER HARVEST

I have three colonies that were all right till just after the flow, and as I noticed they were weaker than they had been, I opened up the hives and found no brood, only in little patches in worker cells and it was raised cappings and all there was in them was drones, and no queen to be found. Is it laying workers? INDIANA.

Answer.—Yes, there must be some drone-laying workers in those hives, caused by the loss of their young queens after swarming. They have probably been queenless since July.

FOOD CHAMBER

1. I want to place a super with half-depth extracting frames, on top of the hive body, and intend to leave it there both winter and summer, so as to be sure the bees have plenty of honey through the winter and early spring. Should I keep the queen excluder under the super at all times?

2. Is the honey fit to extract, put in jars and market as soon as it is gathered whether it is capped or not? When is best time to extract?

3. What causes extracted honey to ferment about six to eight months after extracting? COLORADO.

Answers.—1. If you use eight-frame hives you need more room than the queen has in the lower story to breed. But if you use ten- or twelve-frame hives or M-D hives there is probably enough room in the bottom story. However, we never add another story of honey, to winter, if the hive body is properly supplied. If you have the larger hives, use the queen excluder; if the small ones, leave it out.

2 and 3. The third question replies to the second. If you remove the honey too soon after the crop, it will not be all ripened and some of it will ferment sooner or later The honey may be ripe and not sealed. But if it is freshly harvested and not sealed, some of it will probably be unripe and it is best to leave it on the hive a week or so before extracting it. The sealing of the cells is not an absolute proof of its being ripe, for we have sometimes seen honey which burst the cappings of the cells, having evidently been sealed too soon.

TRAPPING BEES FROM HOUSE

1. I have eight colonies, six in two bodies, ten frames, and two in single bodies

SHIPPING CASES

A real display honey case—one that will help sell your honey.

Pails and square cans

Write for prices that can't be beat.

Charles Mondeng Company

159 Cedar Lake Road

Minneapolis, Minnesota

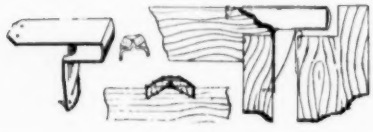
MOTT'S Northern Bred Italian QUEENS

LISTEN: to thank our customers and to introduce our queens to farther trade, we will reduce price for the balance of the season on our SELECT GUARANTEED PURE MATED QUEENS to 75c. You are getting as good as tested queens, as we replace free any that should fail.

E. E. MOTT & SON, Glenwood, Mich.

BEEKEEPERS

Repair that Broken, Split, or Short Lug, and protect others



With our Metal Frame Spacers and Clip Supports

New low price: Spacers, 25c per 100. Clip Supports, $1.00 per 100

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CATALOG FREE
Invaluable to garden lovers—tells how to beautify home surroundings. Gives pictures and description of Wagner hardy flowers, trees, and shrubs. Explains the mail service Landscape Department. Write for catalog 217
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Nurserymen • Landscape Gardeners • Florists

(small colonies). I took all but two of them out of trees and wired the brood in the frames. Followed the advice of your Bee Journal and got along O. K. I can get three swarms in different houses by trapping them out. Can I use one of my small swarms to set beside the funnel, made to let the bees in the house out and not back?

2. Could I use a frame of brood with a queen cell on?

3. If so, should I leave some bees on the frame?

4. What will become of the old queen in the house?

5. Is there any danger of her, if I take the funnel away in three or four weeks?

6. Is this a good time to trap the bees? There is no honey coming in now.

7. I have a patch of buckwheat just about ready to bloom. Can I expect any surplus honey from this, from the late swarms, got about the last of July?

8. What kind of winter packing cases should I use in this part of Iowa, and where can I buy them?

9. Would three or four thicknesses of heavy storm paper do? IOWA.

Answers.—1. A small swarm placed near a spot where bees would be compelled to remain out of their home would probably attract them. But I have never had much faith in this trapping of bees, because you secure only the field workers, many of which are already worn.

2-3. A frame of brood with a queen-cell on it would be good. But there should certainly be some young bees left on it, as the field workers that you would catch would be nearly all too old to care for brood. Their salivary glands that furnish the pap are atrophied, usually.

4. Of course the old queen will continue to live and will quit breeding only when there is no more chance for her to be fed.

5. I do not know what you mean by the question: Is there any danger of her if I take the funnel away in three or four weeks? But my surmise would be that what little honey would be left would probably be robbed out when you took the funnel away and the queen and brood would die.

6. I do not konw whether there is any good time to trap bees. This would probably be as good as any.

7. Buckwheat yields a great deal of honey in some localities in September. It would probably furnish surplus to strong colonies and food for winter to weak ones. Late swarms may be reckoned as weak colonies.

8. Almost any dealer in bee supplies can furnish you with packing cases for winter. I would recommend the kind that take two colonies in preference to the larger ones. You are not very far north in Iowa and your winters cannot be much worse than ours.

9. Heavy storm paper is a very good shelter for hives. The main winter hardship to be feared is the occurrence of strong northerly winds. When the colonies are well protected against winds they can stand a great deal of cold, if they have plenty of good, ripe food. Bad honey, unripe or loaded with foreign substances is deadly to the bees.

PROVIDING DRONES

There are no drones in any of my colonies. I have even forced some of my colonies through queen excluders and have not found a single drone. I wish to raise a few queens to do my fall requeening, and would like to know how I might induce some of my best colonies to raise drones, as some are hybrids and in this way I would insure pure matings.

TENNESSEE.

Answer.—Yours is a rather unusual occurrence in the month of August. It is usually easier to have too many drones than not enough.

To cause drones to be reared place a sheet of drone-comb in the center of a strong colony. It is always best to rear your drones from strong colonies anyhow, as they are the desirable ones.

If there should be no honey in the flowers, it may be necessary to feed the colony that is producing drones. But usually there is enough of it produced in the summer to enable strong colonies to maintain drones.

Remember that it takes twenty-four days, from the time the egg is laid, to hatch drones, and, besides, it takes about a week before they take flight. So it requires at least a month to produce drones, while it takes only twenty days or less to have young queens ready to mate.

TRANSFERRING IN FALL

I have a number of swarms of bees in "gums," which I wish to transfer to modern hives. Would you advise this to be done now or next spring? No honey is expected this year; the only thing to be considered is the good of the bees, and if necessary to carry over the winter they could be fed.

OKLAHOMA.

Answer.—The best time to transfer bees from "gums" or from any other hives is spring, at the time of fruit bloom, because at that time they have the least amount of honey, there is not a great deal of brood yet, and the honey that comes in from fruit bloom is sufficient to keep them from trying to rob each other. Besides the weather is mild and not warm enough to render the combs too soft to be handled, and not cold enough to cause them to break in handling. The booklet, "How to Transfer Bees," gives all necessary instructions.

Arkansas Has Flood Committee

We are just in receipt of advice from Mr. J. V. Ormond, chief inspector of apiaries for Arkansas, that the state apiary board has appointed the following committee to act on relief for beekeeper flood victims in this state:

J. V. Ormond, chairman committee.

A. D. Hiett, Texarkana, Arkansas.

J. R. Hackett, Little Rock, Arkansas.

It is expected to have this committee work in conjunction with the committees from Louisiana and from Mississippi in distribution of funds for flood victims.

Bees Are Rewarding Denver Policeman

J. B. Dillon

Bees swarming in Denver, Colorado, caused many calls for the fire and police departments, but the "gang" were of little avail until Officer Edward T. Ripberger showed how it is done. He finds the queen and carries her to the apiary he has provided at his home, and there the bees decide to live. He is recognized as the official "keeper of the bees," and no doubt passing autoists will see a sign, "Honey for Sale."

Anyone who is looking for a start in the bee business might try Officer Ripberger's method.

Capacity 40% Greater than the 10-frame hive

More Honey at Less Cost

with the

Modified Dadant Hive

Apiary of 50 colonies, like the above, produced 250 pounds of honey per colony in 1925, at Hamilton, Ill. Ten-frame hive average for year, 150 pounds.

B. F. Kindig, formerly State Apiary Inspector of Michigan, writes:

"The future of the honey business depends upon the profit that beekeepers will make. As beekeepers, you and I have a great deal to do with the cost of production in our yards. . . .

. . . "An Iowa beekeeper writes me: 'After several years' experience with the Modified Dadant hive, I find that it has produced all of 100 per cent more honey with 50 per cent less work than any other hive we have used. I have never lost a colony in the Modified Dadant, and they are so strong that every season is a good honey season.'

"A beekeeper from Missouri writes: 'I have bees in eight-frame, ten-frame and Dadant hives and consider the latter far the better. The Dadant hives yield from 50 to 100 pounds more honey per colony than the others. They are more economical to run and it is not necessary to go through them so often."

(See American Bee Journal, March, 1925, Page 113)

Modified Dadant hives are sold by all dealers in Lewis Beeware and Dadant's Foundation

SPECIAL PRICES ON HONEY CONTAINERS

Tin Cans and Pails—Best Quality on the Market

In strong dust-proof cartons—Pails with sure-on bails—Shipment from Grand Rapids

2½ POUND CANS		5 POUND PAILS		10 POUND PAILS	
Per Dozen	$0.60	Per Dozen	$1.00	Per Dozen	$1.50
Per 100	4.00	Per 50	3.50	Per 50	5.00
		Per 100	7.00	Per 100	10.00
		Per 200	13.50	Per 200	19.50
		Per 500	32.50	Per 500	47.50

Shipment from Chicago

2½ POUND CANS		5 POUND PAILS		10 POUND PAILS	
Per 100	$3.75	Per 50	$3.25	Per 50	$4.75
Per 450 Crate	16.00	Per 100	6.50	Per 100	9.50
		Per 200	12.50	Per 200	18.50
		Per 500	30.00	Per 500	45.00
		Per 1000	58.00	Per 1000	85.00

Bingham Bee Smokers have pleased purchasers for over 50 years

Shipment from Chicago or Detroit

SQUARE 60 POUND CANS

In Strong Wood Cases of Two Each

10 Cases or more, per case	$.97½
50 Cases or more, per case	.92½
100 Cases or more, per case	.91½
200 Cases or more, per case	.90
50 Cans in bulk crates	17.50
100 Cans in bulk crates	34.00

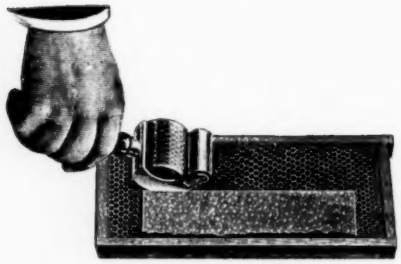
HAZEL or DIAMOND GLASS JARS

In Cartons

Shipment from Grand Rapids

	2 Doz.	20 Doz.	50 Doz.
½ pound	$1.00	$ 9.50	$22.50
1 pound	1.25	12.00	28.75
2 pound	1.70	16.00	37.50

A. G. WOODMAN CO., GRAND RAPIDS, MICH.



Uncapping Knife

Every beekeeper should use the handy uncapping knife. Cuts smooth and thin as a wafer without any loss of honey. Price on request.

Werner Baumgartner
Brookfield, Wisconsin
Distributor

CARNIOLANS

are very gentle, very prolific at all times, build very white combs, are little inclined to rob, rarely affected with European foulbrood, and are most excellent workers.

We have furnished Carniolans for several State Experiment Stations and State Colleges, and the Department of Agriculture and Forestry, Tokyo, Japan, for breeding purposes.

Twenty years' experience with Carniolans. Breeders imported from Jan Strgar, the most extensive queen breeder in Carniola, and M. Ambrozic, an extensive honey producer in Carniola.

Put in a few Carniolans during September to try out next season. This is a better plan than to introduce early in the spring.

Untested queens, one $1.10
Untested queens, six or more, each... $1.00
Tested queens, each 2.00

ALBERT G. HANN, Glen Gardner, N. J.

PORTER

BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory.

R. & E. C. PORTER, Mfrs.
Lewistown, Ill., U. S. A.

(Mention Am. Bee Journal when writing)

Save Time--Save Worry

Dadant's Wired Foundation

Can be nailed into Lewis Slotted Bottom Bar in a jiffy. And such wonderful combs!

Sold by all Dealers in Lewis Beeware and Dadant's Foundation

The Hamilton Meeting

A VERY successful meeting of beekeepers was held at Hamilton on August 9, 10 and 11. This interstate meeting was the outgrowth of the Wisconsin Beekeepers' Chautauqua, which was an annual event for several years. Last year the Wisconsin folks invited the beekeepers of surrounding states to join with them. The success of last year's meeting led to the plans for a permanent interstate organization, with each state entertaining the visitors in turn.

About three hundred were in attendance at the meeting, although there were some in attendance each day who did not remain for other sessions. A large tent was erected in the city park and it was well filled. Many of the visitors camped in the park.

The greatest attraction was the demonstration in controlled mating by Dr. Lloyd R. Watson. Dr. Watson's demonstration was continued each day in order to give everyone present an opportunity to see the operation in detail. Since the work was done under a microscope, only a small group could see it at one time. There was much interest in the demonstration and many expressions of admiration for the doctor's skill in the delicate manipulation. Controlled mating by the method worked out by Dr. Watson is a highly skilled operation and can only succeed in the hands of an expert. However, it opens great possibilities in the breeding of better bees, since both male and female parents can be selected. There was much comment concerning the work still to be done to make the most of the opportunities opened by the discovery of a means of controlling mating in the honeybee. Dr. Watson stated that the most baffling problem connected with the work is the selection of the drones.

Much was said at different times during the meeting concerning the plight of the flood sufferers in the South. Prof. W. E. Anderson, of Louisiana, gave a talk on the flood and the administration of the funds being raised for relief of the beekeepers. He used moving pictures to show what great efforts were made to prevent the breaking of the levees by piling up the dirt embankments and also the great destruction that followed when the water got beyond control. He described the conditions of those who suffered as beyond imagination to picture. Many of them lost their homes, their bees, their livestock and furniture, and even their clothes. Many had no money, no shelter, and no food except what was furnished by the Red Cross.

The session on Wednesday evening was given over to fun and frolic with a serious application. A mock court was held with J. M. Barr, of Wisconsin, as judge. All kinds of charges were preferred against those present, and on being found guilty they were fined varying amounts. The funds thus raised were contributed to the flood relief. A total of $119.00 was raised.

An amusing incident happened at the morning session, when J. V. Ormond came to the defense of his state of Arkansas and vigorously protested against the pronunciation of the name by J. F. Diemer, who was presiding officer at that session. Diemer submitted the matter to a vote of those present, but the chair was overruled and the pronunciation of **Arkansaw,** as claimed by Ormond, sustained. Diemer then announced that the first man to use any other pronunciation would be fined five dollars for the flood relief fund. A moment later, when again speaking of the state, he slipped into his former habit and was the first to pay the five dollars. The best of good feeling prevailed throughout the sessions and everybody seemed to enjoy being fined for so worthy a cause.

The Veilie Quartet, local singers of more than local fame, furnished the musical entertainment for the evening session, with a solo also from the son of Judge Barr, accompanied by Mary Elizabeth Dadant.

There were many good addresses on practical beekeeping topics by well known speakers. Space will not permit more than passing mention of these. Prof. H. F. Wilson, of Madison, Wisconsin, who started the interstate meetings, was in general charge. James Gwinn, president of the Wisconsin Association, presided at the opening session. The assembled beekeepers were welcomed by C. P. Dadant, who presented the good wishes of his organization and of the little city of Hamilton, in which the meeting was held. Addresses by V. G. Milum, Huber Root, Prof. Wilson, Dr. O. W. Park, Prof. Francis Jager, G. E. Marvin, James I. Hambleton, Jay Smith, A. Allen, C. D. Adams, J. V. Ormond and E. S. Prevost occupied the day sessions. Noah Williamson, president of the Iowa Association, presided at one session and J. F. Diemer took the place of the president of the Missouri Association, who was not present.

Tuesday evening was given over to an informal evening of visiting at the home of C. P. Dadant. John M. Davis, of Spring Hill, Tennessee,

was called on for an informal address and greatly interested his audience by recalling some of the great changes that have taken place during his life and a forecast of what may yet happen in the beekeeping industry. Mr. Davis, who is eighty years of age, is greatly admired by his host of friends both north and south. There were many expressions of pleasure at his presence. J. F. Diemer, Harry Lathrop and Mr. Dadant were also called upon to speak in this informal manner.

Probably there have been few bee meetings held with so wide a representation. There were visitors from Alabama, Arkansas, California, Illinois, Indiana, Iowa, Louisiana, Minnesota, Missouri, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Wisconsin and the District of Columbia.

E. S. Prevost, State Apiarist of South Carolina, came the greatest distance from the East, and Isaac Black, of VanNuys, California, the farthest from the West.

Granulated Honey

THE article of Dr. R. J. Goss, on the above subject, page 297 of our June number, has given rise to some protests. Among them is one from Dr. A. C. Burrill, Curator Resources Museum, Jefferson City, Missouri. He quotes a letter from James I. Hambleton, of the Bureau of Entomology, Washington. As we do not wish to let any incorrect statement pass and yet do not feel any authority in this matter, we referred the question to Mr. Hambleton, whose knowledge and impartiality are well known. He replies, among other things, as follows:

"I see no reason at all why some statement should not be made in regard to this article. All the research work which has been done to date on the vitamin content of extracted honey indicates very clearly that extracted honey does not contain vitamins, and if any vitamins do occur they are in such small quantities that the amount is negligible, and for all purposes can be discounted as being of any benefit so far as human food is concerned. Granting that honey does contain vitamins, as a number of writers insist it does, the commercial practice of heating honey to 160° would not destroy these, and so there seems to be but little foundation for the statements made by Dr. Goss. It is a well known fact, of course, that heating honey to a high temperature, or holding honey for an excessive length of time at temperatures usually employed in liquefying honey, will injure the color, due to the caramelizing of the levulose, and of course it is well known that heating will impair to a certain extent the flavor of honey. The enzymes in honey are probably affected by heating, but there is no reason to believe that the destruction of the enzymes impairs the food value of honey."

Dr. A. C. Burrill further writes:

"Surely the facts stated by the Federal Apiculturist in this letter will not be considered prematurely printed at this time, because it is worth repeatedly calling attention to why we have agricultural colleges and a Federal Bureau—that we may have a safety check on being too far misled by private investigations and personal conclusions. Dr. Goss' work may have the germ of a new discovery for which we are all eagerly waiting, and it was his duty to tell the world how the results are coming out with him, just as he has done, that others may follow it up. Interpretations of it may disagree.

"It is now somebody's duty to find out how much it hurts honey to heat it and, if it is not hurt, I question still further if honey heating is at all necessary. If our dear public would not shy and refuse to buy granulated honey, but would learn its use as a jam on bread and the like, I can see no reason for commercial beekeepers having to heat honey. We learn that most kinds of diseases or putrefactive germs are short-lived in so condensed a sweet as honey; thus heating it is not a needed sanitary measure. On the contrary, the marketing of unripe honey will result in spoilage, and, to prevent such fraud on the public, a law to prohibit the heating of honey would seem a more desirable outcome of a little agitation. To this extent I would heartily second Dr. Goss as an aid to bulwarking our pure food laws."

We are certainly in favor of pushing the sale of granulated honey, if the "dear public" can be once educated to its value, but we would be glad to see a unified opinion on the comparative value of heated honey by our scientists.—Editor.

Profits in Grading and Inspection of Honey

Beekeepers will be interested in a statement made by the U. S. Department of Agriculture that the inspection work on butter for the Land O' Lakes Creamery Association of Minnesota is credited with effecting a gain of $211,000 in the business of that concern for the year 1926. This inspection work has been

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done by the Bureau of Agricultural Economics, which is also cooperating with the Bee Culture Laboratory in the work of honey grading and inspection.

This gain is regarded as outstanding evidence of what can be done where the inspection service is made a part of a quality-improvement campaign such as has been carried on by the Land O' Lakes Association. The full value of grading and of inspection service in the marketing of honey cannot be realized unless beekeepers also unite in improving the quality of their product, both in production and in preparation for market.

Yorkshire Beekeepers

Here is a good one from the British Bee Journal, but we will not vouch for it:

"When King James I of England removed his court from Edinburgh to London, he soon discovered that he needed some decent, new, hard-wearing footgear, and a message was sent to Edinburgh to despatch 200 pairs brogues to London. The message was, however, mutilated on the way and arrived in Edinburgh as a demand for 200 pairs **rogues.** The city fathers, with great joy, collected the 400 worst characters they could lay hands on and sent them under escort to London. The mistake, however, was discovered when they had reached Yorkshire. The Scots refused to have them back, or London to receive them, and in Yorkshire they remained, and their descendants are there to this day, and quite a number of their progeny have turned into decent beekeepers.

Advertising in Reading Columns

One of our readers, in Louisiana, Mr. A. Vought, sends us the item below, clipped from the "Pathfinder," and says that this magazine has evidently allowed itself unintentionally to give a free ad to the Karo people, for, he says, "honey is so much more wholesome for the same purpose." There is no doubt about that matter, and we give the clipping, exchanging the word "Karo" for "honey":

"'Jiffy' Lemonade — In the hot weather lemonade is an always refreshing drink. But it requires time to make it. Mrs. Ida Baily Allen tells how to always have on hand lemonade for the sudden guest or for home consumption. Combine two cups of **honey** with the juice of nine medium-sized lemons. Keep this concoction in a covered glass jar until wanted. Then the only thing necessary to do is to put two to three tablespoons of the syrup into a glass filled with crushed ice and water and serve."

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Meetings and Events

Fiftieth Annual Meeting of the Texas Beekeepers' Association

The Texas Beekeepers' Association celebrated its fiftieth anniversary July 26 and 27, at College Station, Texas. This association was founded the first week in August, 1877, and has never missed a summer annual meeting. In 1901 it became a part of the Farmers' Congress, thus fixing its meeting place at College Station. This congress ceased to exist in 1918, but the beekeepers continued to meet at College Station. The attendance this year was very good and the things accomplished even better. The program was opened on Tuesday morning by short talks by L. R. Noland, the president of the association, Fletcher Davis of Hondo, J. W. Du Boes of Devine, and by J. A. Moore of Dallas. Dr. L. C. Spencer, of the Louisiana Department of Industry and Immigration, gave a very interesting talk on the Honey Producers' League. A. D. Jackson, editor of publications, Texas Agriculture Experiment Station, spoke on publicity for beekeepers. H. B. Parks, of the State Apiculture Research Laboratory, spoke on the subject of "The Major Honey Plants of Texas and Conditions Which Affect Nectar Secretion." A resume of this paper was broadcast over Station WTAW Monday noon. Dr. E. P. Humbert gave a review of what had been done in the field of genetics with reference to the honeybee. Mr. H. E. Coffee, of Whitset, Texas, told of his plan of spring management to prevent the loss of colonies. This was a most important talk, as the greatest loss of colonies in the Southwest is not in the winter, but during the period of spring brood rearing. Jess Dalton, Moreauville, Louisiana, told of the flood conditions and of the reconstruction among the beekeepers of that state. J. D. Yancy, of Bay City, Texas, told of the recent improvements and methods used in the shipment of combless packages of bees. He emphasized the importance of uniformity among shippers. L. R. Noland gave a concise direction for the management of extraction and of the sale of the honey crop in the cotton section. A. B. Anderson, of Marathon, gave an account of honey production in this interesting part of Texas. W. E. Joor, of Dallas, gave a paper on the possibility of the development of a foreign market. He showed that while such a thing is possible, the development of a home market is easier and more profitable. Miss Alma Hasslbauer, of Waxahachie, gave a talk on advertising honey. T. W. Burleson, of Waxahachie, told of the disorganized condition of the honey market and the need of some kind of an organization. Jess Dalton gave an interesting account of his method of queen rearing. H. B. Parks told of the year's work of the Research Laboratory and of the contemplated queen breeders' association. Dr. F. L. Thomas reviewed the work of the Foulbrood Inspection Service during the year.

The officers elected for the ensuing year were: E. T. Edwards, of Grandview, president; A. B. Anderson, of Marathon, vice-president; H. B. Parks, secretary-treasurer; superintendent of fair exhibits, W. O. Victor, of Uvalde; judge of fair exhibits, T. W. Burleson; delegate to the American Honey Producers' League, T. W. Burleson; delegate to the regional meetings, H. B. Parks; committee on legislation, E. G. Le Stourgeon, W. E. Joor, T. W. Burleson; on program, Dr. S. W. Bilsing, Dr. F. L. Thomas, L. R. Noland.

This organization voted to support the American Honey Producers' League. The beekeepers who specialize in queen breeding, who were present at the meeting, formed a temporary organization of their own, looking forward to a state and probably a nation-wide organization to assure uniformity of products in the queen and live bee industry.

The most enjoyable part of this fiftieth anniversary meeting was the "bee buzz" at the home of Dr. Bilsing, the night of July 26. A very amusing program consisting of sketches, illustrating the peculiarities of well known beekeepers, produced much merriment. Speeches and refreshments gave the members something that will be long remembered by all who were so fortunate as to attend the annual meeting of 1927.

H. B. Parks, Texas.

Arkansas Valley Meet

On June 26 a meeting of the Arkansas Valley Beekeepers' Association was held at the Park Villa, Wichita, Kansas. About sixty beekeepers and their friends were in attendance.

Mr. J. A. Nininger, of Hutchinson, gave a talk on "Marketing Honey." Mr. Nininger has built up a very good local market in the vicinity of Hutchinson. "Prices and Selling Through the Various Trade Channels," was the topic of Mr. A. V. Small, of Augusta, Kansas.

Mr. J. H. Shockey, of Wichita, a veteran of the world war, gave a talk telling how the physicians had given him up to die of several complications; among others he was near a nervous breakdown, had Bright's disease and a weak heart.

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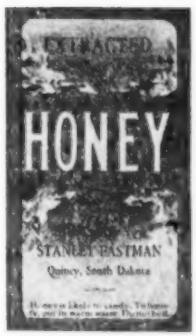

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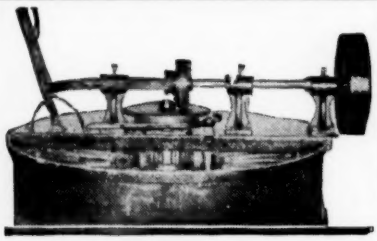

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Dr. Curtiss, of the Veterans' Bureau staff at Wichita, put him on a diet of honey, eggs and milk, chiefly honey and milk. Mr. Shockey states that he ate over two hundred pounds of honey during the first winter, that he ate honey continuously, until he abhorred it. However, he put himself in a position to become so hungry that honey looked good to him. Today Mr. Shockey is a comparatively well man. He is much interested in bees and is a Carniolan fancier.

The State Apiarist, R. L. Parker, gave two talks, one on the "Uses of Honey," and the other, "Preparation for the Honeyflow."

The association voted to join the American Honey Producers' League.

A basket lunch was served by the wives of the beekeepers.

Mississippi Beekeepers' Association Organized

At a meeting of beekeepers held at the Mississippi A. and M. College on Tuesday, July 26, a state association was organized with the following officers:

President, G. A. Hummer, Prairie Point, Miss.; vice-president, Dr. J. D. Shields, Natchez, Miss.; secretary, Clay Lyle, A. and M. College, Miss.

An executive committee was also elected, composed of the three officers and the following well known beekeepers of the state: D. D. Stover, Tibbee Station, Miss.; N. C. Jensen, Crawford, Miss.; Leroy Worthington, Leota Landing, Miss.; R. W. Bruce, Hermanville, Miss.

The association will work for better beekeeping throughout the state. Efforts will be made to assist beekeepers in getting better prices for their honey, standardizing their products, and helping them in other ways. Sectional meetings of beekeepers will probably be held in various parts of the state, and it is hoped that much interest will be aroused. There are no fees or dues and all progressive beekeepers are urged to become members of the organization. All Mississippi beekeepers who desire to be on the mailing list for information sent out by the association should send their names and addresses to the secretary, Clay Lyle, A. and M. College, Mississippi.

Report of Beekeepers' Meeting Held at Hamburg, La., Wednesday, July 6, 1927

The meeting was called with one object in view: How can we help the beekeepers who have lost their bees and equipment in the recent flood? Mr. Dalton and Mr. Morgan, working under orders from the State Department, reported that they had salvaged considerable material scattered all over the parish. It was decided that each beekeeper pick out his own material as far as he could. Mr. Anderson reported that he had written to every bee inspector all over the country, and also that he had received an offer from several manufacturers to render old wax into foundation, free of cost. A rather lengthy discussion followed as to the manner in which the old wax was to be sent in to the manufacturers. It was finally decided to melt it up and ship by freight. Either the Red Cross or the state would consult the express company as to free transportation.

The G. B. Lewis Company wrote that they would donate 300 one-story hives without frame. Mr. Anderson decided that he would put bees into those hives in New Orleans and let them build up in that location, and during the fall or winter months distribute them to the different beekeepers according to the number of hives they had registered with the State Department at Baton Rouge.

Dr. Spencer recommended that the beekeepers hand in a complete report of what they have, what they lost and what they need.

A vote of thanks was tendered to the different bee journals and manufacturers and individuals who had shown kindly interest to the beekeepers all over the stricken area. This resolution was made by Mr. Anderson and seconded by Dr. Spencer.

Despite the destruction and desolation all around, the meeting was a happy one. Many of those in attendance were well advanced in years. Time had left its mark upon their brow; some had given twenty, perhaps thirty, years to building up their apiaries. Like a destroying angel, the overwhelming floods ruined in a few hours the efforts of years. They had lost their all, but they were still cheerful, like all southerners. They took the situation philosophically, inspired with that hope eternal that keeps men from despair.

(Rev.) John P. Cooney, Sec.

Omaha-Council Bluffs Interstate Meeting

An unusually successful meeting was held at Omaha and Council Bluffs on July 12 and 13. The first day's meeting was held at the Rome Hotel in Omaha with Prof. Jager, of Minnesota, J. I. Hambleton, of the United States Department of Agriculture, H. H. Root, Frank C. Pellett and other well known speakers. Mrs. Ida Cornforth, of the Kellogg laboratories, gave an interesting address on increasing the use of honey.

The afternoon was spent in a tour of the apiaries near Omaha. A splen-

did crop of honey was on the hives, gathered from sweet clover, and the honeyflow still in progress aroused much enthusiasm among the visitors.

The second day's meeting, held at Chieftain Hotel in Council Bluffs, was similar in nature to the other, with Prof. J. W. Thompson of Minnesota, O. G. Borton of South Dakota, and H. H. Root as speakers. The afternoon was spent in a visit to the Root factory and a tour of nearby apiaries.

About 125 beekeepers attended the meetings, and among them were several of the most extensive honey producers of the Middle West. Interstate meetings are becoming quite popular and, since they bring the beemen of larger areas together, are very successful.

North Carolina Meet

The North Carolina State Beekeepers' Association will hold its eleventh annual summer meeting in Asheville, North Carolina, on Thursday and Friday, September 8 and 9. This is the first time in several years that the meeting has been held in this part of the state, and it gives promise of being one of the best meetings that the association has ever had.

The program will consist of an indoor meeting Thursday, and a field meet Friday morning, to be held at a modern apiary located in the vicinity of Asheville.

Speakers from both within and without the state, who are authorities upon beekeeping subjects, will appear on the program for interesting talks and discussions. Several successful commercial beekeepers will relate their experiences. A good attendance is expected and the public is cordially invited to attend this meeting.

F. B. Meacham, Sec'y.

Heart of America Summer Meeting

The meeting of the "Heart of America Beekeepers' Association" was held at the home of X. J. Kennedy at Lawrence, Kansas, on July 3. More than one hundred bee folks came from Missouri and Kansas. The day was ideal, the roads were good and a good honeyflow was in progress. Such a combination of conditions encourages a good meeting, and this one was successful from every standpoint.

The program was varied and none of the speeches were long. There were prizes for the best bee story, for the longest journey to come to the meeting, etc.

The prize-winning story outlined an attempt by artificial mating to cross the bee with the mosquito so as to get an insect without a sting to gather honey by both night and

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day. Unfortunately the cross worked the other way and produced an insect that would both bite and sting and worked by both night and day at tormenting the human race while gathering no honey.

The swarming of the bees, during the program, about stampeded the audience, as always happens under such circumstances. All told, the day was filled with pleasure to the visitors.

Much interest was manifested in the Kennedy gardens, where large numbers of flowers in great variety are grown.

Meeting at Gainesville, Florida

By Robert H. Foster

The beekeepers' section of Farmers' Week opened with a very good attendance.

Tuesday morning, R. E. Foster, State Apiary Inspector, introduced Dr. Wilmon Newell, dean of the Agricultural College, who gave a cordial welcome to the beekeepers and talked on queen breeding. E. E. Pressler told how to produce a maximum crop of honey.

Tuesday afternoon, Harry H. Laidlaw, grandson of Charles W. Quinn, gave a demonstration of hand mating drone and queen. R. E. Foster gave instructions on how to judge a queen. J. W. Barney, president of the State Beekeepers' Association, Bradentown, Florida, talked on Florida honey and read a paper on cooperation and cooperative bottling and marketing of honey. A paper describing a device for measuring the tongue reach of honeybees, and also scientific breeding of queens, by Mr. Charles W. Quinn, was read by Mr. Foster.

Wednesday morning the State Beekeepers' Association was reorganized and the following officers were elected: J. W. Barney, of Bradentown was re-elected president; E. E. Pressler, Orlando, vice-president; L. M. Lewis, Havana, secretary and treasurer. These officers, together with Messrs. J. H. Booth, La Belle, and Charles Mack, Sharpes, Florida, comprise the Board of Directors. R. E. Foster lectured on brood diseases of the honeybee.

Wednesday afternoon a picnic was held at Earleton Beach for all the visitors attending Farmers' Week. Over a thousand people attended this picnic.

Mating Demonstration

The outstanding feature of this meeting was the hand mating of queen and drone by Harry H. Laidlaw. Mr. Laidlaw is the only person who has ever accomplished this with any success. I understand that Dr. Watson has succeeded in artificially inseminating a queen, but this is with the use of instruments. Mr. Laidlaw actually mates the drone and queen by hand. He is only a boy eighteen years of age, and three years ago he mated his first queen. A few months ago I saw a letter from a beekeeper in California stating that queens which had been sent to Mr. Laidlaw about three years ago to be hand mated were still laying. This man took virgin queens, clipped and marked them and sent them to this fifteen-year-old boy. They were mated and returned, and when this letter was written they were laying good. This is a wonderful achievement and this boy should be given full credit for succeeding where older and wiser men have failed.

From Our English Visitors

At present arrears of work through a nine weeks absence prevent us carrying out our intention of writing to all the friends we made during our visit to Canada and the United States. We shall therefore be pleased if in the meantime you will insert this letter expressing our grateful thanks to all those who gave us such a glorious time.

The bond of friendship between the beekeepers of the mother country and the Dominion has been considerably strengthened, while those residing in the States will no doubt have formed a very different opinion of English people than they have had hitherto by their contact with us. On our part we confess that our impressions have considerably changed, so that in the future closer and friendlier intercourse between the followers of the craft in the two countries will result.

One of the desires of our life has been attained in meeting that grand old man of beekeeping, Mr. C. P. Dadant (the Cowan of the United States), and as long as we live we shall treasure the memory of our visit to his estimable family, whose boys are worthy sons of a worthy father, and in no less a degree are the daughters a counterpart of a beneficent and loving mother. 'What a family! and what a staff at the works and on the American Bee Journal, each one of which is treated with as much consideration as are the members of the family. Indeed one and all made our visit a great joy.

The W. Herrod-Hempsall Family,
Luton, England.

Mountain States Association News

At the directors' meeting of the Mountain States Honey Producers' Association here in the latter part of June, it was predicted that prospects for the honey crop this year are that prices will be firm and higher, although the yield will not be normal in the Rocky Mountain states. Reports from all of the western states were given, not only by directors, but by representatives from every section of the states included in the association, as well as other states.

California's sage honey crop is practically a failure, representatives from that state reported, while the orange crop of that state will not exceed 30 per cent of normal. This takes California out of the white honey field, leaving a strong tendency to better prices in the intermountain section, in the opinion of the directors.

Salt Lake City and Ogden were selected as heavy concentration points for honey. The directors telegraphed E. B. Boyd, chairman of the western trunk lines commission at Chicago, asking for lower freight rates. The association decided to work for a reclassification of rates.

Directors who were permanently installed are: J. M. Stark, of Middleton, Idaho, president of the association; A. W. Anderson, of Emery, Utah; C. H. Ranney, Lander, Wyo.; O. A. Sippel, Bozeman, Mont.; Frank Beach, Burley, Idaho, and W. H. Kendle, temporary director from Colorado. C. H. Stinson, of Twin Falls, was made secretary-treasurer and A. W. Kjosness, former commissioner of agriculture of Idaho, was made temporary manager.

Among the honey producers from widely scattered points who were in Ogden for the meeting and made reports of actual conditions in their respective sections were: Frank Rauchfuss, manager of the Colorado Honey Producers' Association, of Denver; Fred O. Redfield, Los Angeles; Earl Miller, Blackfoot, Idaho; James Watson, manager of the Western Colorado Honey Exchange, of Grand Valley; M. Spencer Stone and T. L. Ball, of Ogden; William McKibben, Star, Idaho; Mrs. E. F. Atwater and G. A. Koger, of Meridian, Idaho; H. K. Hutteball, of Boise, Idaho; W. E. Meyer, assistant manager of the Intermediate Credit Bank of Spokane, Wash., which materially aids in financing the warehousing of the association's honey crop, and McKeen F. Morrow, attorney for the association, of Boise, also were at the meetings.

[*Money Saved*]
[*Time Saved*]

Bee Supplies

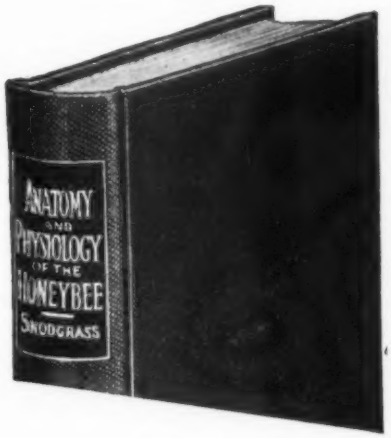
Root's Goods at factory prices with WEBER'S service. Send us a list of your wants and we will quote you prices that will save you money.

C. H. W. Weber & Company
2163-65-67 Central Avenue
CINCINNATI, OHIO

QUEENS 50c EACH

Any number. By return mail or to suit your convenience in introduction. Every queen must be O. K. or she doesn't go. Nothing cheap but the price. "We strive to please with better bees." Constantly looking to improvement. Twelve years' experience in queen-rearing on large scale, with every facility provided, enables us to put out queens of highest quality; large, vigorous, prolific, and beautiful in color, throwing bees of uniform yellow color true to strain, gentle and great hustlers. Pure three-banded Italians only. Pure mating and safe arrival guaranteed. Never had any disease here.

JENSEN'S APIARIES **Crawford, Miss.**



WHAT THE BEE IS—
WHAT IT DOES—
AND HOW IT DOES IT—

Valuable to every beekeeper who wishes to have in his library an authentic reference work on the insect of so much interest and importance to him. Published February, 1925.

Anatomy and Physiology of the Honeybee

By R. E. Snodgress, U. S. Bureau of Entomology
327 pages, 6x9, 108 illustrations, $3.50
English price, 17-6 net, postpaid

AMERICAN BEE JOURNAL, Hamilton, Illinois

Mention the American Bee Journal When Writing Advertisers

Crop and Market Report

Compiled by M. G. Dadant

For our September crop and market page, we wrote to our reporters, asking them to answer the following questions:

1. How large is the honey crop compared to 1926?
2. Prospects for balance of season.
3. How much old crop left?
4. How is new crop moving?
5. What basis offer for large lots comb and white extracted?

CROP COMPARED TO 1926

The following states report a much better crop than in 1926, and the amount larger than last year given in percentages: Maine, 200 per cent; Massachusetts, 115 per cent; Kentucky, 125 per cent; Michigan, 105 per cent; Wisconsin, 115 per cent; Ohio, 150 per cent; Indiana, 200 per cent; Illinois, 200 per cent; Iowa, east half, 200 per cent; Iowa, west, 150 per cent; Missouri, 150 per cent; North Dakota, 100 per cent; Kansas, 175 per cent; Nebraska, 150 per cent; Oklahoma, 150 per cent; New Mexico, 150 per cent; Arizona, 140 per cent; Utah, 100 per cent; Washington, 100 per cent; Oregon, 150 per cent.

All the balance of the states are reporting less than last year, and in the southeastern states especially the crop has been unusually poor. In fact, some of our reporters in Alabama and Mississippi and Georgia especially, as well as Virginia, are reporting that they will get no surplus this year and may have to feed the bees for winter.

Florida is also in about as bad shape, and Louisiana will have only about 50 per cent of a crop. In Texas the crop will be about 70 per cent of last year. New York and Pennsylvania report about the same.

In the intermountain territory there will probably not be over 70 per cent of last year's crop, and in Idaho some of the reporters claim from 30 to 40 per cent of 1926.

California, usually one of the big shippers of honey, will only have 50 per cent of last year's crop, which was claimed to be only 60 per cent of a normal crop. This agrees about right with some of the reporters, who state they are having 25 or 30 per cent of a normal crop. California should be able to use a considerable proportion of the honey they have produced this year.

PROSPECTS

In the regions where the crop has been good, prospects are also good, and the intermountain territory promises also to develop a little better than earlier in the season. In the Southeast, prospects cannot help the final crop very much, nor can there be much change in Texas or the Southwest.

Eastern states have fair possibilities for buckwheat, and in the fall producing areas of the Central West conditions look very favorable owing to late rains and ideal conditions for honey plant growth.

OLD CROP LEFT

It is surprising the little amount of honey there is carried over from the 1926 season. In fact, it is quite a different condition from that that prevailed a year ago. A few states are still reporting carryover, but they are the exception rather than the rule, and the carryover is very small, some states reporting about 15 per cent carryover. Those reporting carryover of honey are Florida, Kentucky, Texas, Michigan, Wisconsin, Minnesota, Kansas, New Mexico, Arizona, Colorado, Wyoming, Washington, Oregon.

It is true that some of the larger lots of old honey moved early this spring at figures that were a great sacrifice. This honey, however, is gone now, and much of it has moved to foreign countries, so it will not interfere with the present crop, having already been consumed.

MOVEMENT OF NEW CROP

In most territories the crop has not been sufficiently harvested to give an idea of honey movement. In the Central West, however, and in parts of the East, the conditions are such that honey is moving very much more readily than it did a year ago. In fact, the demand has developed without any pushing on the part of beekeepers and the short crop of fruit in many sections undoubtedly is a help in creating a demand for honey.

OFFERS

Most buyers are content to wait and see what the market is going to do before making any offers which would be remunerative.

Offers have been made on Florida honey on a basis of 7 cents, and in Kentucky honey has been quoted on at 9 cents for extracted and $4.00 per case for comb.

Some Michigan honey has moved at 9 cents per pound and $4.50 for comb, and Ohio has been quoted in some instances at 10 cents and $4.50. Indiana beekeepers are loathe to take less than 10 to 11 cents and $4.80 per case. One Illinois beekeeper has been quoted a price of 8 cents f. o. b. Chicago for good, white, extracted honey, and one western Iowa beekeeper reports an offer of 6 cents per pound for good extracted, which is, of course, below the market.

In the plains area most beekeepers are inclined to expect higher prices than a year ago, and undoubtedly this will materialize. We have one or two reports from Arizona of honey being sold at a price of 6½ cents in carload lots for light amber extracted. New Mexico reports sale of a car at 8 cents.

In the intermountain territory we do not believe that any honey could be located that beekeepers would be willing to take a price of less than 7½ cents per pound f. o. b. shipping point. This appears to be an extremely low price as the market and demand are now developing, especially owing to the shortage of the honey crop in heavy producing areas.

SUMMARY

All in all, apparently this looks like a year of good honey prices. Earlier predictions were for an extremely heavy crop of honey, but this has been a disappointment in some sections of the West, and especially California, as well as in the Southeast. The extremely heavy crop in the Central West is largely counteracted by the fact that most of this honey is sold by the beekeepers themselves or by the retailers in the smaller towns, never reaching the central markets, so there will be no great competition with the imported honey from the heavier producing areas.

There are three added points which will help move the crop. The first of these is that the very fact that there has been a crop in the heavily populated areas tends to help move the crop by advertising itself; the beekeeper is constrained to hunt a market and the publicity of heavy honey crops and much swarming in itself creates a demand.

The second point is that the fruit crop has been extremely scarce in the Central West, which means that honey is going to take its place to some extent.

In the third place, there has been practically a clean-up of all old stocks of honey, except in rare instances, and the new honey will immediately be put on the market at nice prices.

We know of several inquiries from abroad already for new crop honey, which in itself is attractive.

Personally, it does not look like good, white extracted honey should sell for less than 10 to 11 cents per pound f. o. b. Central West or eastern points, which would be a price of at least 8 cents per pound f. o. b. intermountain or western territory.

Good comb honey is selling readily to retailers at a price of $5.00 to $5.50 per case, and some little has moved in larger lots from western territory at $3.50 to $3.75 for numebr 1.

Please do not understand that prices are going to range entirely higher than a year ago, because undoubtedly there will be price cutters this year as there always is. However, advance reports and general conditions would indicate that prices at which honey starts selling this fall undoubtedly will hold stiff during the fall and winter, and there may even possibly be advances as the crop moves out.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used beekeeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied either by a certificate of inspection from an authorized inspector or agreement made to furnish such certificate at the time of sale.

BEES AND QUEENS

FOR SALE—Italian bees and queens for balance of the season. Write me and get my prices before purchasing for your fall requeening and give me a small order. If I could not give you as much for your money as anyone I would not ask your trade. O. P. Hendrix, West Point, Miss.

QUEENS NORTHERN BRED—Your last month for the season to get our hardy Italian queens by return mail $1.00 each.
Benson Bee Line Co.
Galena, Ill., R. F. D. 2.

CAUCASIAN QUEENS from imported stock. Select untested $1.50 each for balance of season. Now booking orders for 1928 delivery. Tillery Bros.,
Greenville Ala., Rt. 6.

YOUR last chance to requeen. If you have any colonies that have not been requeened you should act now, before it is too late. A poor queen will result in the loss of a honey crop next season, if not the loss of the colony this winter. When requeening use the best. One untested, 80c; twelve for $9.00. Tested, $1.50 each. Safe arrival and satisfaction guaranteed. Health certificate with each shipment. Write for circular and price list, also prices on quantities. J. M. Cutts & Son,
R. 1, Montgomery, Ala.

REQUEEN NOW—75c will buy one of my beautiful golden Italian queens. Send at once. J. F. Michael, Winchester, Ind. R. 1.

FOR SALE—Palmetto Italian queens, good as any, superior to many, 50c each. Want contracts to furnish queens, season 1928, at 50c each.
C. G. Ellison, Belton, S. C.

AMERICAN BEAUTY Italian bees and queens. Tupelo Apiaries, J. L. Morgan, Prop., Apalachicola, Fla.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 24 years for vigorous hustlers, good winterers, gentleness, and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices. Untested queen, $1.25; 12 untested queens, $12.00; one breeder, $10.00.
Emil W. Gutekunst, Colden, N. Y.

GOLDEN ITALIAN QUEENS that have the other qualities desired in bees as well as the golden color. Prices: Untested, $1.00; 6, $5.25; 12 to 49, 75c each; 50 or more, 70c each. Health certificate and safe arrival.
Hazel V. Bonkemeyer,
R. 2 Randleman, N. C.

GOLDEN ITALIAN QUEENS for balance of season, the big bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, 85c each; six, $4.75; twelve, $9.00; 100, $65.00. Tested, $1.50 each. Safe arrival guaranteed. Health certificate furnished.
E. F. Day, Honoraville, Ala.

PURE ITALIAN QUEENS—The kind that pleases. Prices attractive. Guaranteed satisfaction or money back. Write
Roy Weaver, Navasota, Texas.

LISTEN—To all new customers answering this advertisement I will sell two of our select untested Carolina queens at the price of one. Two for $1.25.
Carolina Bee Co., Graham, N. C.

THRIFTY Caucasian tested queen, $2.00; untested, $1.00; Italian, 60c, by return mail. Yard inspected regularly for protection of disease. Peter Schaffhauser,
Havelock, N. C.

GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 pounds, $2.50; 3 pounds, $3.25. Safe delivery guaranteed. C. B. Bankston,
Box 65, Buffalo, Leon Co., Texas.

DIEMER'S bright three-banded Italian queens, mailed to you in introducing cages, May and June, $1.25; six, $6.50; twelve, $13.00. After June, $1.00; six, $5.00; twelve, $10.00.
J. F. Diemer, Liberty, Mo.

GOLDEN Italian queens that produce golden bees. Very gentle and good honey gatherers. Untested, $1.00; six, $5.40; twelve or more, 80c each. Tested, $1.50. Select tested, $2.50. State inspected. Safe arrival and satisfaction guaranteed. Send for price list. D. T. Gaster,
R. 2, Randleman, N. C.

TRY our high class queens and get the honey. We sell only the best selected Italians, guarantee safe arrival and complete satisfaction in every way. Our queens are personally reared and we want you to try them. Prices are $1.00 each; 6 for $5.50; 25 at 80c each, and 50 or more 75c each. Salida Apiaries,
T. L. Nicolayson, Prop.
Salida, Calif.

HIGHEST grade Italian queens—Tested, $1.50; untested, 75 cents. Package bees, one pound, $1.50; two pounds, $2.50; three pounds, $3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.
T. L. Davis, Buffalo, Leon Co., Texas.

SIMMONS' QUEENS — One, $1.00; six, $5.50; twelve, $10.00. Prices on nuclei reduced. No disease. Queens by return mail. Fairmount Apiary,
Livingston, N. Y.

PACKAGE bees and queens. Charles Wallace, Box 35, R. 1, Glenn, Cal.

"SHE-SUITS-ME" QUEENS—Three-banded stock. None better. Untested queens from May 15 to June 15, $2.00; after June 15, $1.50. Introduction guaranteed.
Allen Latham, Norwichtown, Conn.

GOLDEN QUEENS producing yellow to tip. Untested, $1.00 tested, $2.00; young breeders, $10.00. Come ahead with your big orders; my apiary has doubled twice over. Satisfied customers everywhere. Safe arrival guaranteed. Print your address.
H. G. Karns, Victoria, Va.

PETERMAN'S select Italian queens from sunny California: 1, $1.00; 6, $5.50; 12, $10.00; 25, $20.00; 100, $75.00. Safe delivery and entire satisfaction guaranteed.
H. Peterman, Lathrop, Cal.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00.
A. W. Yates,
15 Chapman St., Hartford, Conn.

FOR SALE

FOUR metal-cover Jumbo hives and stands with sixteen wired frames with full sheets three-ply foundation; two ventilated escape boards, five 4x5 section supers. All ten-frame Root supplies used three seasons. No disease, satisfaction guaranteed. Sixteen dollars, or will trade for Novice extractor with 12-inch pockets.
O. S. Ward, Obion, Tenn.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn, odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

BEES FOR SALE—300 colonies free from disease, with large bee house, power extracting outfit and all equipment; also place with house and lot, reasonable. Good reasons for selling.
Silsbee Apiaries, Bath, N. Y.

ONE Root-Cowan reversible extractor, never been used. Has two 13½x17-inch pockets. Will take four Modified Dadant extracting frames.
Odell F. Burch, Chincoteague, Va.

FOX AND FUR FARMING—The fastest growing and the most profitable industry in the world. Our monthly publication, seven years old, prints all the news. Sample copy 25c. Subscription $2.00 per year in United States, $2.25 in Canada.
American Fox and Fur Farmer,
St. Peter, Minn.

HONEY AND BEESWAX

FOR SALE—40,000 pounds A-No. 1 Michigan white clover honey. Prices on request. Sample 10c.
Ralph E. Blackman,
R. 4, Portland, Mich.

FOR SALE—White clover honey in sixty-pound cans. Strictly No. 1 grade.
A. G. Kuersten, Burlington, Iowa.

NEW crop white clover honey, not extracted until thoroughly ripe. Put up in sixties. Two to the case.
Frank Coverdale, Maquoketa, Iowa.

FOR SALE—New crop fine white clover in 60-lb. cans.
Arnold Panning, Okolona, Ohio.

FOR SALE—Large stock first-class white clover, sweet clover, basswood, light amber and buckwheat extracted honey. Producers who need more, dealers and solicitors should write us about their wants.
A. I. Root Co. of Chicago,
224 W. Huron St., Chicago, Ill.

WHITE CLOVER HONEY—Extracted, comb and chunk honey. Prices on request. Sample 15c.
F. W. Summerfield, Waterville, O.

FOR SALE—Extra fancy white clover honey in new 60-lb. cans. Also comb honey, some of the best you ever bought. Write for prices.
Martin Carsmoe, Ruthven, Iowa.

WINKLER'S white clover honey in new 60-pound cans at 10c pound. Reduced price on large lots. Sample prepaid 20c.
Winkler Honey Co., Joliet, Ill.

EXTRACTED and comb wanted. Advise us what can ship and price wanted, sending samples of extracted. Comb must be 4¼ sq. by 1⅞ beeway sections. Prefer glass front cases. State how comb packed and grading, etc. Arthur H. Hoffman Co.,
Richmond Hill, N. Y.

EXTRACTED HONEY—Extra fancy, white clover; 60 lb., 13c pound; six 10-lb. pails, $9.00; twelve 5-lb. pails, $9.60.
Kalona Honey Co., Kalona, Iowa.

FOR SALE—Fancy white clover honey in 60-lb. cans; new 10c, old 8½c per lb.; twelve 5-lb. pails, $7.75; twelve 5-lb. pails chunk honey, $9.00. Sample 15c. Discount on large lots.
Joseph H. Hoehn, Ottoville, Ohio.

FOR SALE—New crop white clover comb honey. Standard sections. Prices on request. C. Holm, Genoa, Ill.

MOORE'S fancy clover extracted honey; thick, well ripened, delicious flavor. Prices quoted on application.
J. P. Moore, Morgan, Ky.

EXTRACTED clover honey, fully hive ripened, from famous Lake States limestone clover belt. In sixties, five- and ten-pound pails. Prices on request. Sample 15c. James B. Gray,
Sylvandale Apiaries, Sylvania, O.

COMB and extracted honey, finest quality. Write for prices, stating quantity. Sample extracted 15c.
Arthur Beals, Oto, Iowa.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

FOR SALE—Thousand pounds finest quality of white clover and basswood blend of extracted honey, put up in 5-10-pound pails. Five-pound pail 75c.
Alfred Soder, Stratford, Iowa.

CARLOTS or less NEW crop sweet clover extracted honey. Finest quality, priced right. L. A. Thrall, Anthon, Iowa.

HONEY—Fancy and extra fancy comb and extracted. Irvin A. Stoller, Latty, Ohio.

FOR SALE—Extracted buckwheat honey. Five pounds 85c, postpaid.
Edward Hogan, Gibson St.,
Canandaigua, N. Y.

HONEY WANTED—Carload of white extracted every month.
L. D. Taylor, Chandler, Okla.

HONEY—In 60-lb. cans, white clover 10c, buckwheat 7c. F. J. Smith,
R. 1, Castalia, Ohio.

WANTED—A car or less quantity of white honey in sixty-pound cans. Mail sample and quote lowest cash price for same; also send for my cut price circular on cans and pails for honey containers.
A. W. Smith, Birmingham, Mich.

NEW white orange blossom honey in 60-lb. tins, 12c per pound.
Leutzinger & Lane,
76 Clay St., San Francisco, Cal.

FOR SALE—Clover honey in 5-10 pails. Write for prices.
Otto Beer, Milford, Ind.

FOR SALE—Comb and extracted honey, now ready to ship. State your wants.
H. G. Quirin, Bellevue, Ohio.

GET MY PRICES on clover honey. Any quantity. C. S. Engle, 1327, 23rd St.,
Sioux City, Iowa.

EXCELLENT quality straight white clover honey in new 60's at 10c per pound. Sample. Ohmert & Son, Dubuque, Iowa.

FANCY CLOVER EXTRACTED—In new 60's, by the case or carload.
J. N. Harris, St. Louis, Mich.

EXTRACTED TUPELO—The greatest of all honeys; never granulates, mild, deliciously flavored. Sample 20c of barrel to car lots. Parcel post package delivered, half gallon, $1.85; one gallon, $3.55.
M. L. Nisbet & Bro., Bainbridge, Ga.

FOR SALE—Fine clover honey in new 60's. Free of disease. Twelve dollars per case.
Newman I. Lyle, Sheldon, Iowa.

FANCY white tupelo extracted and bulk comb, packed in five-pound tin.
J. L. Morgan, Tupelo Apiaries,
Apalachicola, Fla.

FOR SALE—White sweet clover extracted honey and fancy white comb in shallow frames. Quality goods that will please your trade. Write for prices.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

FOR SALE—Best clover extracted honey in new sixties. Say how much you can use and let us quote you our price.
E. D. Townsend & Sons, Northstar, Mich.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co.,
217 Broadway, New York.

FOR SALE—Northern white extracted and comb honey. M. W. Cousineau,
Moorhead, Minn.

FOR SALE—White extracted honey in five-pound pails. Twelve pails, $9.60; fifty, $37.50; one hundred, $70.00, f. o. b. Jenison. Also northern bred Italian queens.
Jay Cowing, Jenison, Mich.

SHALLOW frame white comb honey and white extracted honey.
The Colorado Honey Prod. Ass'n,
Denver, Colo.

FOR SALE—Choice clover extracted honey packed in new 60-pound cans and cases.
J. D. Beals, Dwight, N. Dak.

CLOVER and basswood honey, blended by the bees. Color white; body fine. Extracted, sections and shallow frame comb. Sample 15c.
W. A. Jenkins, Rockport, Mo.

WHITE clover comb honey. Eight case carriers, $4.50 per case.
W. Ritter, Genoa, Ill.

HONEY WANTED—Several thousand cases white clover comb honey, size 4¼x4¼x1⅞. Must be white and strictly graded, fancy and No. 1. No other grade wanted; also extracted. Send sample, give quantity and price wanted. We pay cash.
A. L. Haenseroth,
4161 Lincoln Ave., Chicago, Ill.

"BEEWARE" and Dadant's Wired Foundation for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices.
B. F. Smith, Jr., Fromberg, Mont.

FOR SALE—Our own crop amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

HONEY FOR SALE—In 60-lb. tins. White clover at 12c lb.; white sage at 12c lb.; white orange at 13c lb.; extra L. A. sage at 11c lb. Hoffman & Hauck, Inc.,
Ozone Park, New York.

Classified Ads Pull

"Possibly you recall the little ad I put in your March issue, of two honey extractors for sale. I took those over at a forced sale (having no knowledge of bees).

Supposed I would have to list them at least three or four times, BUT I DID NOT HAVE ENOUGH EXTRACTORS FOR ONE ADV. Think I could have sold at least a dozen.

I shipped one to Painted Post, N. Y., and one to Ozan, Ark.

I felt it my duty to compliment you on the success of your advertising."
C. A. Dye, Belle Valley, Ohio.

If you have anything to sell or trade use our classified columns

SUPPLIES

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

FOR SALE—Good second-hand 60-lb cans, two cans to a case, boxed. We have large stocks of these on hand. Please write for prices if interested. We are offering only good cans and good cases.
C. H. W. Weber & Co., Cincinnati, O.

MISCELLANEOUS

DIEMER QUEEN CAGE—A novelty in queen introduction. Indorsed by hundreds of beekeepers in U. S. and Canada. Directions with each shipment. Price 15 cents; eight, $1.00. Patented and manufactured by
J. F. Diemer, Liberty, Mo.

LABELS, PRINTING, ENGRAVING—Finest work, lowest prices. Catalog free. Write Traders Printing Co., Springfield, Mo.

WESTERN HONEY BEE, 2823 E. 4th St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. $1.00 per year. Send for sample copy.

MAKE queen introduction sure. One Safin cage by mail, 25c; 5 for $1.00.
Allen Latham, Norwichtown, Conn.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

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GLEANINGS IN BEE CULTURE, published at Medina, Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is George S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

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GIRL of twenty-three wants to learn bee business with reliable company or private owner, beginning in early spring. Good references.
L. B., care of American Bee Journal.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.
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204 Walnut St., Cincinnati, Ohio.

Some Algerian Honey-Producing Flowers

Most of our readers will remember Mr. Bernard, who has written some interesting facts about bee smokers and other things, for the American Bee Journal, and whose portrait was published on page 31 of January, 1926.

Mr. Bernard writes: "The news that I can give you of Algerian beekeeping this season is bad, owing mainly to the dry conditions in most sections. But in the parts where they cultivate the "geranium" from which they draw a perfume, the crop of honey has been abundant. The geranium blooms in summer, even without moisture. It is very melliferous and its honey is very pleasing to the taste, as its perfume is not too strong. This honey is white, with a slight tint of amber."

Mr. Bernard adds: "I read with great pleasure your personal recollections in the American Bee Journal. The early trials of your father in America were similar to those of all the men who leave their country to go, under other skies, exercise their activity and a spirit of initiative. As I lived, with my mother early a widow, I experienced the privations which one must suffer and which, as you suggest, become a habit which one does not lose even when later conditions would permit to dispense with the economy of our young days."

Released From Hospital

A letter from M. H. Mendleson, now of Ventura, California, one of California's oldest beekeepers and largest, is to the effect that he has just been released from the hospital after a severe operation and long illness.

Commenting on the crop, Mr. Mendleson states that the season has been unusually cold and the sage crop a failure, the worst ever known since 1840.

We know our readers will join with us in hoping for Mr. Mendleson a complete recovery from his illness.

Missouri Conditions Fine

The flow has been immense here lately. Nine pounds yesterday. But will end soon unless it rains. Scale hive shows 176 pounds total for 1927, the finest honey I ever saw.

Irving E. Long.

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Mr. A. K. Whidden, San Jacinto, Cal., says: "In 1913, 80 per cent of the bees in this district died of European foulbrood. I had an apiary of 60 colonies headed by daughters of your queens in which I did not lose a colony, and in 1914 they made 360 pounds per colony.

"In 1917 I bought 12 queens of you and introduced them to diseased colonies. Four of them became too weak to recover, and they all got rapidly worse until it looked impossible for any of them to recover. In eight of them, as soon as the young bees from your queens began to hatch, the disease began to disappear. They cleaned up and stayed clean."

I am now filling orders by return mail.

Untested queens, $1.00; 6, $5.00; 12, $9.00. Select untested, $1.25; 6, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.

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J. ALLEN, Catherine, Alabama

Comparing Carniolans and Italians

By P. Peterson

EVERY once in a while this subject comes up in the bee journals and is dismissed with a brief account of their qualities and behavior and a reference to text books in beekeeping. Still the number of queen breeders who advertise Carniolans seem to be increasing. Perhaps the observations of one who has kept the two races side by side and watched them closely afield as well as in the hive would interest your readers and help them to decide which race is best adapted to their territory and climate. So that no one may think that I am prejudiced against one or in favor of the other, I will tell how I came to keep both and compare them.

In 1920 I had a few colonies each of bright and dark Italians, hybrids, and a few pure blacks, the survivors of an apiary of forty, most of which had died in 1918. I bought the last at a farm sale. To make increase, I would divide the hybrid colonies and give each an Italian queen-cell. The blacks were sometimes divided, but not Italianized, because they were good comb honey producers and I wanted to observe them. Every fall I would find some of the hives that were given queen-cells without queens, and sometimes destroyed by moths. It was most noticeable with the bright Italians, less so with the darker strain, and I cannot remember that I ever found a colony of blacks queenless.

I soon found that the kingbirds were causing the losses. They are common here. Sometimes there would be as many as half a dozen perched in the apple trees or evergreens, watching for bees, and of course the large, light-colored bees were oftenest caught. I am sure of this because I have shot a number of kingbirds and examined them. I decided to try a race of bees of darker color and swifter flight than the Italian, and ordered a few Carniolan queens, four years ago last fall. Next spring I bought a number of bright three-band Italians in order to test the matter and settle it for myself. I have observed them now until I am familiar with the characteristics and behavior of both races. They build up and work in different ways, but the average yield from each, rightly handled, will be almost the same. Sometimes one excels, sometimes the other. It all depends on the locality and the season. The Carniolans increase fastest and the queens are seldom lost, so in spite of the fact that I bought four times as many Italians, my bees are now mostly Carniolans. I bought both kinds from reliable breeders so as to give them a fair test.

The Carniolans are not so quiet on the comb as the Italians, but fully as gentle. When I open a hive, as many as a dozen may fly at my hands or face, but they hardly ever sting—simply touch with their antennae as if curious, and fly back to the hive. They never rob or drift, but resist robbers well. They build up faster than Italians and are ready to swarm a week or ten days sooner. They build more queen-cells and will swarm more if left alone. Sometimes a queen will not be satisfied with two hive bodies, but starts to fill the third with brood, when kept in Langstroth hives. For extracted honey, I keep them in Dadant hives and give plenty of super room and ventilation. When they threaten to swarm, I remove a few combs of brood with queen-cells to make increase, and destroy the rest of the cells unless I want to raise queens.

With Langstroth hives, I winter in two stories. When the honeyflow begins I raise one with most of the brood above two empty supers and let them rear a queen, then remove to another stand. That does away with most of the swarming.

The combs are almost free from propolis. I believe that is a trait that has been acquired since the bees were domesticated. They do not use it, because they have been kept in tight little hives and packed in house apiaries in the winter. A swarm that is left in a hive with poorly fitting lid or cracks will try to close them with wax and propolis just like other bees, but will do less than Italians. If we want to preserve this trait, I believe we must keep them in tight hives and pack for winter. They fly farther than Italians and are usually the first to find new sources of honey, but when a source of honey is located inside a mile or two the Italians are the fastest and most persistent workers. The Carniolans are more discriminating when storing and keep mostly to the clovers, while the Italians will gather from anything that yields honey in the fall. That is probably because they originated high on the slopes of the Alps, where the winters were long and severe. Those colonies that gathered good stores survived; those with poor winter stores died. The Italians have been kept for at least two thousand years on the plains of Italy, where there are short, intense honeyflows, often a long dearth after harvest, and a long, open winter. So they became fast and persistent workers whenever there was honey to be had.

And they can be fast and persistent workers here, too, as many of us have found out.

In a mountainous country the south slopes will yield honey one or two weeks earlier and the north slopes later than the level, so the honeyflows are drawn out and last almost from spring until killing frosts in the fall. But vegetation is more scant in the mountains and the honey must be gathered from a larger territory. So the bees there become stronger fliers and are kept too busy to get into mischief. They have not learned to rob.

Now if we compare the conditions in our locality with those of Italy or Carniola, it will help us to understand which race is best suited to our purposes. Where there is a mild winter, short, intense flows, followed by dearth of nectar, the Italian will probably be best. Where the winter is long or severe, the time of building up short, and the honeyflow lasts longer, the Carniolan will probably prove better. They keep the colony up to honey-gathering strength later in the season.

In handling the different races, one cannot help having crosses between them. Most of them are not as good as either pure race. The cross between black and Carniolan seems to be a little better than the black, but runs badly when smoked and swarms too much. The cross between bright Italian and Carniolan is a little better, but there are strains of Italians of a coppery color, probably mixed with Cyprian. A cross with such a strain is not pleasant to handle. They have the strong flight of the Carniolan and the ready sting of the Cyprian.

The only cross that I would recommend is between leather-colored Italians and Carniolans. They seem to average as good as either pure race. Some of them have been my best honey gatherers. The first cross is usually good; further crosses are more uncertain. I have never known a Carniolan or the first cross to rob, but when crossed with Italians so that the hybrids were mostly Italians robbing would sometimes occur.

Iowa.

Mottaz Injured

Alfred Mottaz, well known beekeeper of Ottawa, Illinois, who is nearly 85 years of age, was hit by a motor car running on the railroad track near his home. When returning from an outapiary in his Ford truck the accident occurred. He was picked up unconscious and taken to the hospital. Two days later he left the hospital with bruises, but no serious injury. His many friends will congratulate him on his miraculous escape from death or permanent disability.

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After many years of agitation, the control of apiary inspection in California was placed under the State Department of Agriculture at the last session of the legislature. For many years the county system of inspection has been in use. Since county ordinances regulated the movement of bees, there was much confusion. With statewide inspection service it is hoped that results will be more uniform and that more efficient inspection can be secured. Under the old system the inspector had no authority beyond the boundary of the county by which he was appointed. Diseased bees just over the line often offered a menace which he was powerless to control.

It is our understanding that the counties may still continue to support local inspectors, but that they shall be under direction of the State Department of Agriculture. Uniform regulations will thus prevail over the entire state.

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